



DECEMBER 2004

Interim
Report to Congress

SPECIAL
DIABETES
PROGRAM
FOR INDIANS

IHS National
Diabetes Program

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Special Diabetes Program for Indians

EXECUTIVE SUMMARY

In the Balanced Budget Act of 1997, Congress established the Special Diabetes Program for Indians to provide prevention and treatment services to address the growing problem of diabetes in American Indians and Alaska Natives (AI/ANs). Since the Special Diabetes Program for Indians funding was extended to FY 2008, the Indian Health Service (IHS) National Diabetes Program conducted an interim evaluation and at the request of Congress created this progress report to describe how the Indian health system is meeting the original legislative intent.

The IHS National Diabetes Program assembled the information in this report to meet the original objectives of this evaluation:

- 1) To determine whether the Special Diabetes Program for Indians did implement prevention and treatment services to address the growing problem of diabetes in AI/ANs.
- 2) To measure whether the prevention and treatment services implemented through the Special Diabetes Program for Indians resulted in short-term, intermediate, or long-term positive outcomes.

This evaluation is the most comprehensive evaluation of the initiative to date. Using a variety of data sources, the IHS National Diabetes Program demonstrated significant accomplishments in implementing prevention and treatment services, and in documenting short-term, intermediate, and long-term positive outcomes. The following is a brief summary of the results of this evaluation.

Objective 1: To determine whether the Special Diabetes Program for Indians did implement prevention and treatment services to address the growing problem of diabetes in AI/ANs.

RESULTS: The Special Diabetes Program for Indians funding increased levels of services for the prevention and treatment of diabetes.

**This evaluation
is the most
comprehensive
evaluation of the
initiative to date.**

The IHS awarded Special Diabetes Program for Indians grants to 318 programs under 286 administrative organizations within the 12 IHS Areas in 35 states.

Services Implemented:

The IHS awarded Special Diabetes Program for Indians grants to 318 programs under 286 administrative organizations within the 12 IHS Areas in 35 states. The IHS distributed 27 (9%) grants to IHS programs, 33 (10%) grants to urban Indian health programs, and 258 (81%) grants to tribal programs. Increases in specific services are noted below under short-term outcomes.

Objective 2: To measure whether the prevention and treatment services implemented through the Special Diabetes Program for Indians resulted in short-term, intermediate, or long-term positive outcomes.

RESULTS: The Special Diabetes Program for Indians funding resulted in the achievement of numerous short-term, intermediate, and long-term positive outcomes.

Short-term Outcomes:

Compared to their level of services prior to the funding (before 1998), the programs funded under the Special Diabetes Program for Indians achieved numerous improvements (**short-term outcomes**) in diabetes prevention and

treatment services as of FY 2002 through increases in the following services:

- Availability of **basic clinical exams, newer medications and therapies** for diabetes treatment, **laboratory tests** to assess diabetes control and complications, **screening** for diabetes and pre-diabetes in a variety of locations, including screening for adults and elders and children and youth
- Use of key elements of **quality diabetes care**, multidisciplinary **diabetes team staffing**, availability of **nutrition education services** by Registered Dietitians and Public Health Nutritionists, conduct of **community diabetes needs assessments**
- Partnerships between **tribal leaders and tribal members** on diabetes-related issues, local **community partnerships**, partnerships with **outside organizations**, policies addressing diabetes prevention and care
- Availability of **organized diabetes education programs** and support services, availability of **culturally appropriate diabetes education materials** and education approaches, a variety of **diabetes education methods**, availability of continuing education opportunities for health care providers
- Applying a variety of **traditional approaches**



- Funding of **primary prevention** activities, **diabetes awareness** activities, availability of **physical fitness activities**, availability of **community nutrition services**, **collaborations with the U.S. Department of Agriculture** to improve nutrition in communities, **diabetes primary prevention programs** for children and youth, **screening and management of overweight and obesity** among children and youth, **nutrition education programs** for children and youth, **community-based healthy eating programs** for children, youth, and families, **physical activity programs** for children and youth, availability of **breastfeeding promotion programs**

Intermediate and Long-term Outcomes:

The IHS National Diabetes Program also demonstrated significant accomplishments by demonstrating a variety of intermediate positive outcomes that have been achieved and long-term outcome baselines that have been established since implementation of the Special Diabetes Program for Indians. This includes improvements in the following:

- **Control of blood glucose, blood pressure, total cholesterol, LDL cholesterol, and triglycerides**
- **Treatment of risk factors to prevent cardiovascular disease**, to prevent and delay the progression of **diabetic kidney disease**, and to detect and treat **diabetic eye disease**
- **Baseline Measures** - The IHS National Diabetes Program improved the accuracy of baseline long-term outcomes measures (**prevalence and mortality**) so that the ultimate successes and outcomes of the Special Diabetes Program for Indians can be measured accurately when they improve in the future. The IHS established a **Diabetes Data Warehouse** using **RPMS (Resource and Patient Management)** data to measure accurately the long-term **complications of diabetes**.

Other Outcomes:

The Special Diabetes Program for Indians funding and implementation resulted in a number of additional outcomes:

- **Indian Health Best Practice Models** - In response to Congressional direction, the IHS National Diabetes Program used the supplemental funding from the Consolidated Appropriations Act to build upon the successes of the diabetes grant programs through a consensus-based Indian health "best practices" approach. Fourteen Best Practice Models were developed to assist the diabetes grant programs.
- **Collaborations and Partnerships** - The IHS National Diabetes Program developed and built upon collaborations and partnerships with federal

EXECUTIVE SUMMARY

The Special Diabetes Program for Indians

Fourteen Best Practice Models were developed to assist the diabetes grant programs.

Best Practice Model for American Indian/Alaska Native Communities: Diabetes Screening Programs

Screening activities are important to identify individuals with diabetes before complications develop as well as people who are at risk for developing diabetes.

Screening programs also serve to link at risk individuals with promising intervention programs within their communities.

A review of Special Diabetes Programs for Indians grant applications indicated that nearly two percent (14%) of grant programs used a mix of all of the best practice guidance for Diabetes Screening Programs to design and implement diabetes screening activities in their communities.

Stages important to screening for diabetes: Early screening and treatment can help reduce the risk of diabetes complications.

Diabetes is a chronic disease that can be prevented or delayed by early screening and treatment.

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and private organizations as a result of the Special Diabetes Program for Indians, including Department of Health and Human Services agencies, AI/AN organizations, diabetes expert organizations, and academic institutions.

- **Challenges** - In addition to their accomplishments, the diabetes grant programs also provided the IHS National Diabetes Program with information on their challenges after administering diabetes prevention and treatment services in AI/AN communities for over five years.

Their challenges occurred in the following areas:

- Administrative
 - Staffing
 - Space
 - Access
 - Clinical
 - Education
 - Behavioral
 - Evaluation
 - Training
 - Technical Assistance
- **Five Years Later: Lessons Learned** - As a result of this interim report, the IHS National Diabetes Program staff reviewed the lessons that were learned from this initiative:
 - Important role of tribal consultation and tribal leadership
 - Collaboration between tribes and federal programs and agencies and communities in the fight against diabetes
 - Training and building community capacity
 - Program evaluation
 - Sharing information
 - Building programs based on best practices
 - Building on the existing diabetes network
 - Data collection and surveillance
 - Challenge of staffing programs in rural areas
 - Developing a grant process for this complex initiative
 - Developing partnerships and utilizing other resources

Summary

In summary, the Special Diabetes Program for Indians funding resulted in over 300 new diabetes treatment and prevention services in AI/AN communities, consistent with its original legislative intent, and resulted in numerous accomplishments so far. With five more years of funding, these programs will be able to continue to fight the epidemic of diabetes in AI/AN communities. While the ultimate outcomes of reducing the morbidity and mortality from diabetes may take several more years of effort, the programs and activities implemented under the Special Diabetes Program for Indians provide a strong foundation and a new beginning towards a diabetes-free future.

Chapter 1

BACKGROUND

The Balanced Budget Act of 1997 established the Special Diabetes Program for Indians to provide prevention and treatment services to address the growing problem of diabetes in American Indians and Alaska Natives (AI/ANs). The Balanced Budget Act required an Interim (2000) and Final (2002) Report to Congress. Subsequent legislation extended and increased the amount of funding for this initiative, and delayed the Final Report to Congress to 2003 (the Consolidated Appropriations Act of 2001) and then to 2008 (PL 107-360).

Given the current interest of Congress, the Indian Health Service (IHS), and other stakeholders in the status of this initiative and its progress in meeting the original legislative intent, the IHS National Diabetes Program conducted an interim evaluation and produced this progress report to Congress on the Special Diabetes Program for Indians. Therefore, the objectives of this evaluation are:

- 1) To determine whether the Special Diabetes Program for Indians did implement prevention and treatment services to address the growing problem of diabetes in AI/ANs.
- 2) To measure whether the prevention and treatment services implemented through the Special Diabetes Program for Indians have resulted in short-term, intermediate, or long-term positive outcomes.

AI/ANs now have the highest published prevalence of diabetes in the world. In 2000, 14.9% of AI/ANs aged 20 years or older had diagnosed diabetes, compared to 8.4% for non-Hispanic whites.¹

"Our mother had diabetes, and we lost her to it. We both have diabetes. That makes four out of seven of us children who have diabetes. We wonder, where did diabetes come from? Is it hereditary? Can our children prevent it with good nutrition and exercise?"

Evelyn Eagleman, right, with Valerie SunChild (Rocky Boy)



Between 1997 and 2001, the prevalence of diabetes increased 33% in all major regions served by the Indian Health Service.²

Among all age groups, the highest increase in diabetes prevalence has occurred among AI/AN adolescents aged 15–19 years, with a 106% increase from 1990 to 2001.³

The IHS National Diabetes Program is pleased to submit this Interim Progress Report to Congress on its evaluation of the Special Diabetes Program for Indians. This report contains information on the background and implementation of the Special Diabetes Program for Indians, a description of the methodology for the evaluation of this initiative, and the results of the evaluation, including data on activities that resulted in short-term, intermediate, and long-term positive outcomes. Information on the epidemic of diabetes in AI/AN communities and a discussion of scientific evidence on diabetes treatment and prevention are included in Appendix I.

A. The Special Diabetes Program for Indians

Balanced Budget Act of 1997

The Balanced Budget Act of 1997, enacted by Congress in August 1997, provided \$150 million to the IHS over a five-year period (from FY 1998 to FY 2002) to establish grants for the “prevention and treatment” of diabetes in AI/ANs. The entities eligible to receive these grants included IHS programs, tribes and tribal organizations, and urban Indian organizations. The IHS distributed this funding to over 300 such entities through a process that included extensive tribal consultation, the development of a formula to distribute funds to eligible programs, and a formal grant application process. These programs were allowed to use this funding to design programs and activities according to local priorities and needs. The initial distribution of this funding and the types of programs and activities implemented were summarized in the IHS National Diabetes Program’s 2000 Interim Report to Congress.

Consolidated Appropriations Act of 2001

In the Consolidated Appropriations Act of 2001, Congress appropriated additional funding for the Special Diabetes Program for Indians. This appropriation included an additional \$70 million in FY 2001, \$70 million in FY 2002, and \$100 million in FY 2003, thereby extending the program for another year. While the legislation did not contain specific language on how the IHS should use this funding, Congressional input encouraged the IHS to implement a best practices approach, build upon partnerships with other organizations, and evaluate these activities in conjunction with the programs established with the Balanced Budget Act of 1997. Using a distribution formula that was developed through a formal tribal consultation process, the IHS distributed the additional funding to IHS, tribal, and urban Indian organizations.

Extension of the Special Diabetes Program for Indians (PL 107-360)

In 2002, Congress passed HR 5738, which extended the Special Diabetes Program for Indians through 2008, and increased the amount of funding to \$150 million per year. Although this legislation delayed the Final Report to Congress until 2008, the IHS National Diabetes Program conducted this interim evaluation and progress report for 2003.

B. *The Indian Health Service*

The IHS, an agency within the U.S. Department of Health and Human Services, was established in 1955 as the principal federal health care provider and health advocate for AI/ANs. The IHS provides health services to AI/ANs as a result of the trust responsibility of the federal government to provide health care for AI/ANs. This trust responsibility has been reaffirmed through treaties, multiple Supreme Court decisions, and specific Indian health legislation, including the Snyder Act of 1921 and the Indian Health Care Improvement Act of 1976 (P.L. 94-437).

The mission of the IHS is to raise the physical, mental, social, and spiritual health of AI/ANs to the highest level. The agency is a comprehensive, primary health care system of hospitals and clinics located on or near reservations in 35 states. IHS services are administered through a decentralized system of 12 Area offices and 155 IHS and tribally managed service units, which collectively serve 1.6 million AI/ANs. Many AI/ANs rely on IHS services as their only source of health care coverage. The IHS provides direct primary care, referrals for specialty care, and public health services. Since passage of the Indian Self-Determination and Education Assistance Act of 1975 (P.L. 93-638), tribes can enter into agreements (i.e., contracts or compacts) with the federal government to manage their own health programs that were previously managed by the IHS. In FY 2003, tribes managed 52% of the IHS budget. The IHS also provides funding for 34 urban Indian organizations to provide health services to AI/ANs living in urban areas.

C. *The Indian Health Service National Diabetes Program*

In the 1970s, the National Commission on Diabetes identified diabetes as a growing problem among AI/AN communities and recommended that Congress establish a special program to address diabetes within the IHS. Congress authorized funding for a national diabetes program within the IHS in the Indian Health Care Improvement Act of 1976, and the IHS National Diabetes Program was established in 1979.

CHAPTER ONE

Introduction

Diabetes mortality is 4.3 times higher in the AI/AN population than in the general U.S. population.⁴

The Diabetes Control and Complications Trial found that tight control of blood glucose levels was associated with reduced risk of complications of diabetes.⁵

In AI/ANs, diabetes is the strongest risk factor for cardiovascular disease, which is the leading cause of death for AI/ANs.⁶

The mission of the IHS National Diabetes Program is to develop, document, and sustain a public health effort to prevent and control diabetes in AI/ANs. The IHS National Diabetes Program network consists of a national program office in Albuquerque, New Mexico; Area Diabetes Consultants in each IHS Area; 19 Model Diabetes Programs in 23 sites; and local diabetes programs in AI/AN communities. Now the most comprehensive rural system of care for diabetes in the U.S., the program combines both clinical and public health approaches to the problem of diabetes. The IHS National Diabetes Program serves as the key IHS contact and source of information for outside organizations and agencies working on diabetes and disparities related to diabetes. In addition, the IHS National Diabetes Program:

- Provides comprehensive diabetes surveillance.
- Provides research translation through training and technical assistance.
- Conducts quality assurance and improvement activities in clinical and community programs.
- Provides technical support to IHS, tribal, and urban Indian sites nationwide.
- Provides resource information on a range of training opportunities.
- Disseminates health care provider and consumer education resources, as well as best practices information, to IHS, tribal, and urban Indian programs.
- Develops, field-tests, and distributes AI/AN diabetes education print and audio-visual materials to IHS, tribal, and urban Indian programs.

The IHS National Diabetes Program promotes collaborative strategies for the prevention of diabetes and its complications through the network of Area Diabetes Consultants and Model Diabetes Programs.

Area Diabetes Consultants – The Area Diabetes Consultants (formerly called Diabetes Control Officers) were established by the Indian Health Care Improvement Act of 1976. They provide orientation, training, and monitoring activities; translate and disseminate the latest scientific findings related to diabetes prevention and treatment; serve as a liaison between the diabetes grant programs and clinical staff at IHS, tribal, and urban Indian health care facilities; serve as project officers on the Special Diabetes Program for Indians grants; and play a critical role in the coordination of the extensive Indian health system diabetes network.

Model Diabetes Programs – The Model Diabetes Programs were established by the National Commission on Diabetes in 1979 and the Indian Health Care Improvement Act of 1976. These programs were designed to develop effective approaches to diabetes care, provide diabetes education, translate and develop new approaches to diabetes control. The 19 Model Diabetes Programs at 23 different sites in the Indian health system have made significant contributions, including state-of-the-art comprehensive, clinical diabetes care through a multi-disciplinary approach; diabetes education and nutritional counseling services; professional education; diabetes prevention activities in communities; support and technical assistance; development and testing of education materials; and scientific articles in peer-reviewed medical journals.

The IHS National Diabetes Program provided leadership and administrative support for the Special Diabetes Program for Indians, which is the largest grant program of its kind in the history of the IHS.

CHAPTER ONE

Introduction

"Right when I found out I had diabetes, I went to see the diabetes educator.

I got a blood sugar monitor and learned how to test my blood sugars. I learned about eating low-fat, low-sugar food. I went away feeling there was hope for me."

Richelle Garcia (Kiowa),
Lawton Model Diabetes Program



D. Other National Initiatives to Address Diabetes

Over the last decade, Congress and the Secretary of Health and Human Services increasingly recognized that minority populations, including AI/ANs, faced racial and ethnic disparities in health.⁸ In response, the Secretary of Health and Human Services launched a number of initiatives and policies aimed at eliminating racial and ethnic health disparities. The following initiatives recognize that diabetes is a priority for eliminating disparities in health:

- Government Performance and Results Act of 1993
- National Diabetes Education Program (1997), a joint initiative sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases and the Centers for Disease Control and Prevention (CDC) Division of Diabetes Translation
- Department of Health and Human Services (DHHS) Initiative to Eliminate Racial and Ethnic Disparities in Health (1998)
- Steps to a Healthier U.S. (2000 and 2001)
- CDC Racial and Ethnic Approaches to Community Health (REACH) Initiative (1999)
- National Institutes of Health Center for Minority Health and Health Disparities (2000)
- DHHS Initiative Advisory Committee on Minority Health (2000)
- DHHS Secretary's Interdepartmental Council on Native American Affairs (2002)
- DHHS Secretary's Diabetes Detection Initiative (2003)

The IHS National Diabetes Program has participated in these efforts and regularly disseminates information and resources from these initiatives to the diabetes programs in the Indian health system.

The Diabetes Prevention Program found that the onset of diabetes in those at risk can be reduced by simple lifestyle interventions (healthier diet and regular physical activity) or medication.⁷

E. Summary

The Special Diabetes Program for Indians was enacted with the recognition that diabetes is a growing problem for AI/AN communities. The IHS, through its National Diabetes Program, has worked to address diabetes through a number of initiatives and activities, and has been able to augment these activities significantly with the new funding under this initiative. This report summarizes the IHS National Diabetes Program's evaluation of the new programs and activities implemented under the Special Diabetes Program for Indians since FY 1998.

CHAPTER ONE

Introduction

"My ancestors ate fish, elk, and venison and there was very little diabetes. Now, there is diabetes in my family. I found out I had it on my 50th birthday. Why do so many of us have it? Everybody, except a very few, seem to have diabetes in their families."

Darlene Taylor (Siletz)



"When I found out I had diabetes, I thought, 'Why did God do this to me?' I just hope and pray my children won't have to go through something like this."

Shelly Andrews (Colville)

Chapter 2

HISTORY, IMPLEMENTATION, AND PROCESS OF THE SPECIAL DIABETES PROGRAM FOR INDIANS

CHAPTER TWO

*History,
Implementation,
... and Process*

The Special Diabetes Program for Indians was funded through the Balanced Budget Act of 1997 and augmented by the Consolidated Appropriations Act of 2001. As a result, the Indian Health Service (IHS) National Diabetes Program implemented a grant process that provided a total of \$390 million from FY 1998 to FY 2002 to over 300 IHS, tribal organizations, and urban Indian programs. This chapter reviews the legislative history of the Special Diabetes Program for Indians and describes how the IHS National Diabetes Program implemented this complex grant program in partnership with local and regional IHS, tribal, and urban Indian health programs, as well as other organizations.



David and Mary Catt are visited by a foot care nurse in their home in Cherokee, North Carolina. The tribe is a recipient of a grant from the Special Diabetes Program for Indians.

This initiative came in the wake of increasing public concern about the human and economic costs of diabetes in the U.S. and its growing prevalence in vulnerable populations, particularly in AI/ANs.

A. Legislative History of the Special Diabetes Program for Indians

The Special Diabetes Program for Indians appropriation was a result of a bipartisan plan to provide funds for the prevention and treatment of diabetes in American Indians and Alaska Natives (AI/ANs). This initiative came in the wake of increasing public concern about the human and economic costs of diabetes in the U.S. and its growing prevalence in vulnerable populations, particularly in AI/ANs. The Juvenile Diabetes Research Foundation; the American Diabetes Association; and key Congressional leaders including Congressman Newt Gingrich, Congressman George Nethercutt, and Senator . Pete Domenici worked together to enact legislation for research on type 1 diabetes in the general U.S. population and for the prevention and treatment of type 2 diabetes in AI/ANs. The specific legislation for the Special Diabetes Program for Indians was enacted as follows:

1. The Balanced Budget Act of 1997

In August 1997, Congress enacted the Balanced Budget Act (BBA) of 1997 to provide \$30 million a year from FY 1998 to FY 2002 to establish the Special Diabetes Program for Indians. The legislation funded grants for “services for the prevention and treatment of diabetes” and the entities eligible for these funds included the IHS, tribes, tribal organizations, and urban Indian organizations. The BBA also required an interim report to Congress in 2000, and a final report in 2002.

2. The Department of the Interior and Related Agencies Appropriations Act of 1998

In 1998, the Department of the Interior and Related Agencies Appropriations Act provided an additional \$3 million to the IHS budget for diabetes prevention and treatment. The Director of the IHS decided to add this funding to the Special Diabetes Program for Indians funding from the BBA, bringing the total amount of funding available for this Program to \$33 million.

3. The Department of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act of 1998

Congress included \$2 million in the Centers for Disease Control and Prevention (CDC) budget in FY 1998 to establish a National Diabetes Prevention Center — CDC’s support for the Center is ongoing. Congress also requested that the IHS allocate \$1 million annually from the Special Diabetes Program for Indians for the Center.

Congressional report language directed the CDC to establish the Center in Gallup, New Mexico, and focus the Center's activities on diabetes prevention in American Indians and on information dissemination. In addition, Congressional report language instructed the Center first to provide services for the Navajo and Zuni tribes, and then to provide services nationally for all tribes. The long-term goal of this Center is to address diabetes prevention for other racial and ethnic groups.

4. The Consolidated Appropriations Act of 2001

In December 2000, Congress passed the Consolidated Appropriations Act (CAA) of 2001, which provided additional funding for the Special Diabetes Program for Indians. This appropriation included an additional \$70 million in FY 2001, an additional \$70 million in FY 2002, and \$100 million for FY 2003, which added one more year to the initiative. While the legislation did not provide specific details on how the IHS was to use this additional funding, members of Congress encouraged the IHS to:

- Follow a best practices approach in the implementation and development of models and strategies to prevent and treat diabetes.
- Continue and build upon its successful work with partner institutions and organizations, such as the National Institutes of Health, the Centers for Disease Control and Prevention, and other diabetes expert institutions.
- Evaluate the enhancements to and development of diabetes grant programs with the CAA funds in conjunction with the programs established with the BBA funds.

5. Summary of the Special Diabetes Program for Indians Legislation

The Special Diabetes Program for Indians legislation provided for the following funding amounts in each fiscal year:

Fiscal Year	Annual Discretionary Appropriation	Balanced Budget Act of 1997	Consolidated Appropriations Act of 2001
FY 1998	\$3 million	\$30 million	
FY 1999	\$3 million	\$30 million	
FY 2000	\$3 million	\$30 million	
FY 2001	\$3 million	\$30 million	\$70 million
FY 2002	\$3 million	\$30 million	\$70 million
FY 2003	\$3 million		\$70 million

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B. Implementation of the Special Diabetes Program for Indians

Congress directed the IHS to implement a grant process to distribute the funding from the Special Diabetes Program for Indians. The IHS is a health care agency with expertise in providing primary health care services, and had not previously administered a large grant program of this nature. Over a very short period of time, the IHS implemented the Special Diabetes Program for Indians according to its legislative intent through a process that included a formal tribal consultation, development of a formula for distribution of the funds to eligible entities, and a formal grant application and administrative process.

1. The Need for Tribal Consultation

Tribal consultation is an integral part of federal program development given the government-to-government relationship between the federal government and Indian tribes. This relationship was established in Article I, Section 8 of the U.S. Constitution and reaffirmed in numerous treaties, laws, and Supreme Court decisions.

During the last ten years, several Presidential Executive Memoranda and Orders were issued instructing the Department of Health and Human Services (DHHS) to consult with federally-recognized tribes on policies that may affect the health of AI/ANs.¹ The DHHS established a formal tribal consultation policy and asked each DHHS Agency to develop their own tribal consultation policies and processes. In response to this request, the IHS developed its own tribal consultation policy that allows tribes to participate fully in the planning and process for consultation.

2. The Distribution Formula for the Special Diabetes Program for Indians Funding

Soon after the funding for the Special Diabetes Program for Indians was announced, the IHS held a meeting with tribal leaders at the 1997 National Indian Health Board Annual Consumer Conference to gather input and recommendations from tribal leaders and urban Indian health program leaders on the new diabetes grant funding. At that meeting, tribal leadership recommended a formal tribal consultation process that included consultation at the local, IHS Area, and national levels. In November 1997, the IHS Director established the Indian Health Diabetes Workgroup to review the recommendations from the local and IHS Area consultations and to determine

a mechanism for the distribution of the funds. The Workgroup consisted of members from the National Indian Health Board, the Tribal Self-Governance Advisory Committee, urban Indian health programs, the Association of American Indian Physicians, the Indian Health Service, and a diabetes expert from the International Diabetes Center.

In late 1997, the Indian Health Diabetes Workgroup reviewed recommendations from the tribal consultation meetings in each IHS Area and determined a method for the distribution of the Special Diabetes Program for Indians funding. In its recommendations to the IHS Director, the Workgroup suggested that the new diabetes funds be distributed in a manner that followed four guiding principles:

- Funds should be distributed in a non-competitive grants process which is in line with a fundamental belief on the part of tribal leaders that tribes should not compete with one another for beneficial resources in a severely under-resourced situation (such as the diabetes epidemic in AI/AN communities).
- Local sites should retain decision-making authority in designing effective diabetes programs to address the specific, unique, and individual needs of their communities.
- A cap of 1% of the diabetes funds should be placed on administrative expenses.
- Funds should be allocated for the purpose of improving diabetes data collection and accuracy.

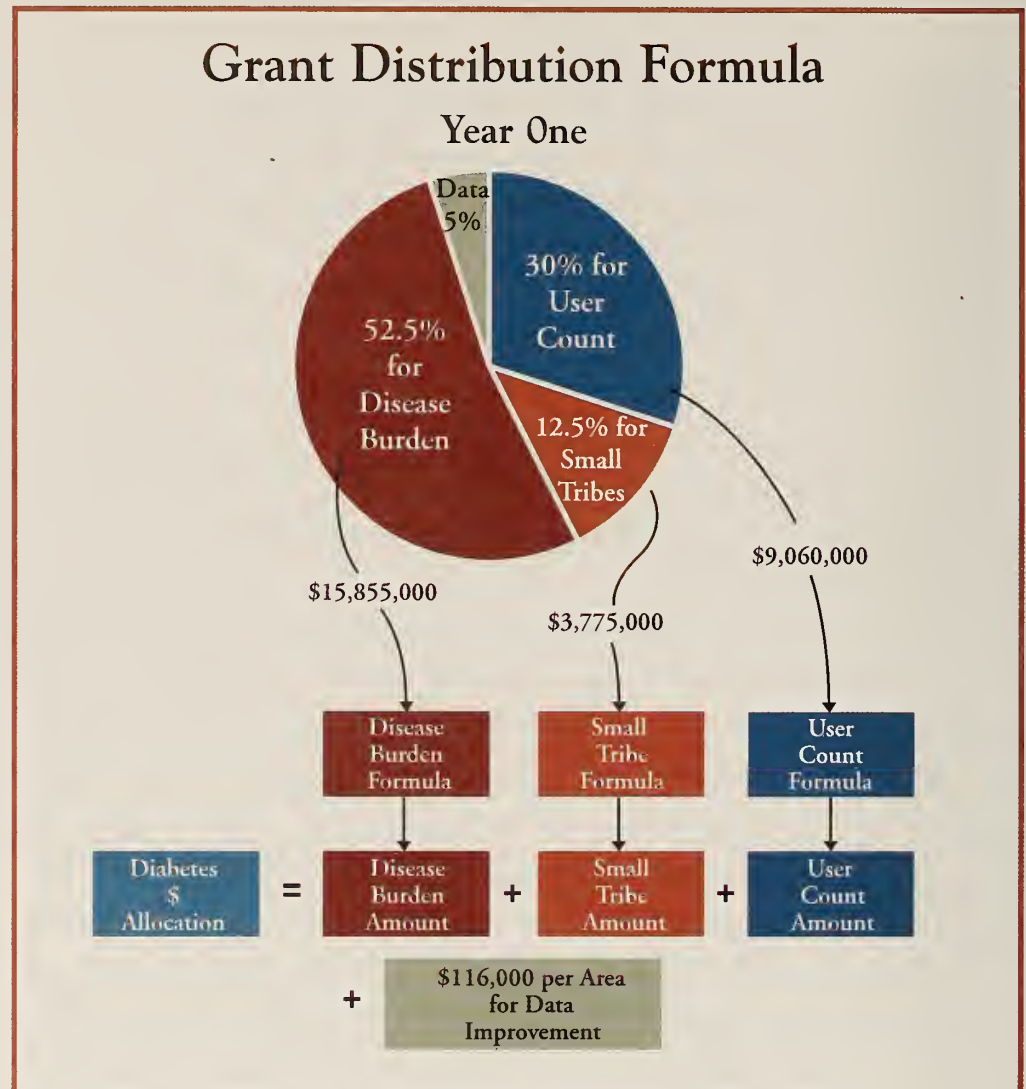
The Workgroup recommended that the distribution of the funds follow a formula that used data to ensure that more funding would go to communities with a significant burden of diabetes. In addition, they felt that since the funding was also intended to provide prevention services, the formula should address the user population of each program. They also wanted to ensure that small programs had at least a base amount of funding to be able to implement programs. Therefore, the final formula included the following factors:

- **Disease burden**
Defined by diabetes prevalence and diabetes mortality
- **User population**
The number of active users of health services in a tribal community
- **Tribal size adjustment**
Ensures that additional consideration is given to the very small communities that may not have an infrastructure to support the development of new diabetes programs

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The IHS Director reviewed the Workgroup's recommendations and issued his final decision on the distribution of the funds in January 1998.² The final formula for distribution is illustrated below:



Following the IHS Director's decision, each IHS Area held tribal consultation sessions to achieve two goals: 1) identify tribal programs that were eligible to apply for the grant funds; and 2) decide how the funds were to be divided among the IHS, tribes, and tribal organizations within each Area. Although urban Indian programs were not eligible for Area funds because they were funded separately (see below), they were encouraged to participate in the Area meetings to promote coordination among the Area diabetes programs and their tribal and urban Indian health partners. Following the tribal consultation sessions, each Area submitted a report to the IHS Director that identified which programs were eligible to apply for grant funds and documented the tribal consultation process to ensure that it had been fair and representative.

In the first and second years of the Special Diabetes Program for Indians, the diabetes funds were distributed to each Area using a funding mechanism that accounted for disease burden, user population, and tribal size adjustment. Since each Area had expressed concern about the lack of accurate and complete disease burden data, a portion of the funding was set aside for improvement of data collection in each Area. Additional funds were devoted to the urban Indian health programs, the National Diabetes Prevention Center, and administrative costs. In the third year of the program, the same distribution methodology was used, but funds for data improvement and urban programs were reduced to correct for a mistake in the California Area's tribal size adjustment. (See Appendix for the funds distribution formula.)

3. The Tribal Leaders Diabetes Committee

In 1998, elected tribal officials on the Indian Health Diabetes Workgroup recognized the need for tribal leaders to provide direct and ongoing tribal consultation on the Special Diabetes Program for Indians and to provide input and consultation on other diabetes-related activities. The Workgroup voted to change the composition of the committee to include only elected tribal representatives from each IHS Area and establish itself as the Tribal Leaders Diabetes Committee (TLDC). In October 1998, the TLDC was formally recognized by the IHS Director to provide input on diabetes-related issues. The mission and vision statements of the TLDC are as follows:

- **Mission:** To make recommendations to the IHS Director on issues related to diabetes and its complications in AI/ANs.
- **Vision:** Empowering AI/AN people to live free of diabetes through healthy lifestyles while preserving cultural traditions and values through tribal leadership, direction, communication, and education.

The mission of the Tribal Leaders Diabetes Committee is to make recommendations to the IHS on issues concerning diabetes. Members have a vision of American Indians and Alaska Natives living lives that are free of diabetes.



CHAPTER TWO

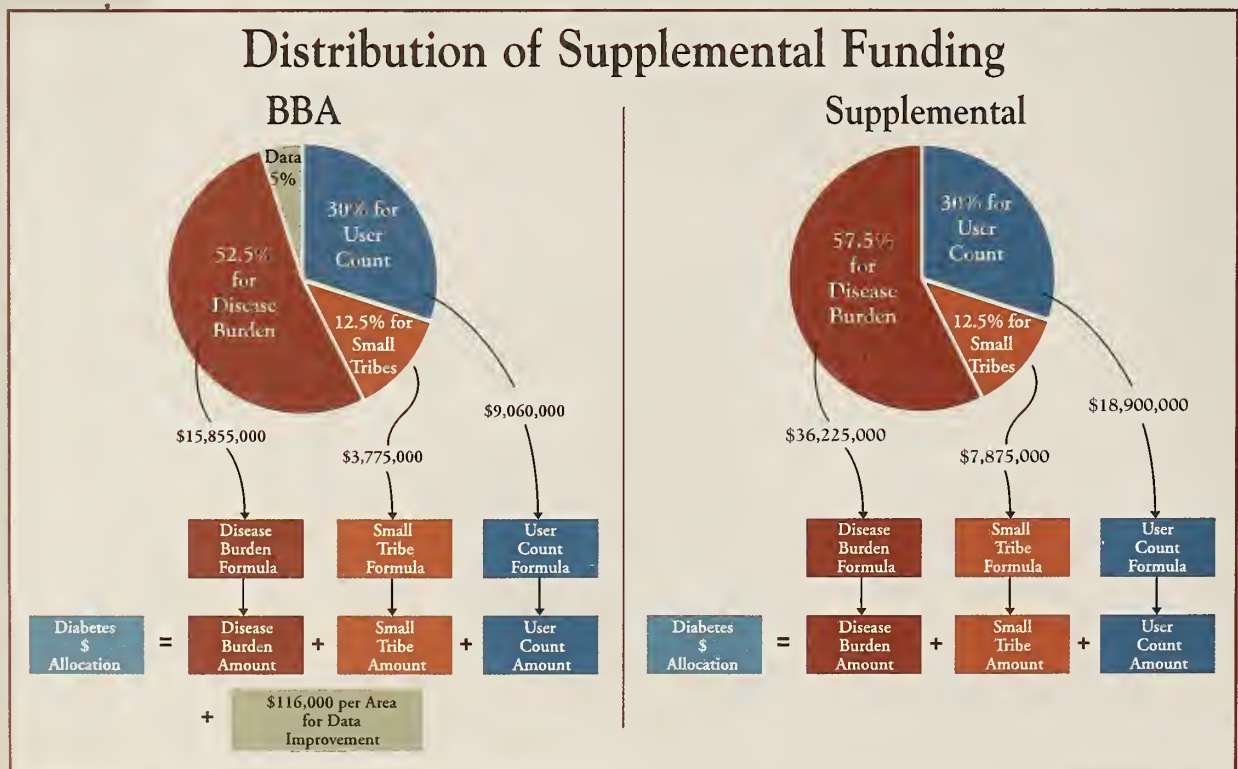
*History,
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The valuable collaboration between the IHS and tribal leaders has been an important outcome of the Special Diabetes Program for Indians, and has contributed significantly to the success achieved in AI/AN communities.

The valuable collaboration between the IHS and tribal leaders has been an important outcome of the Special Diabetes Program for Indians, and has contributed significantly to the success achieved in AI/AN communities. The establishment of the TLDC was the first time a group of elected tribal officials chose to form a committee to address a chronic health condition. It is also significant in its demonstration of a true spirit of ongoing partnership between the TLDC and IHS.³

4. Distribution of the Supplemental Funding through the Consolidated Appropriations Act

The TLDC recommended another formal tribal consultation process in the spring of 2001 for the new funding provided through the CAA. This consultation process was similar to the previous consultations for the Special Diabetes Program for Indians and included a review of each IHS Area consultation. The TLDC recommended a similar distribution methodology for this funding, which included a set aside for urban diabetes grant programs, administrative and support costs, and data improvement. The formula for distribution of the remaining funds consisted of the same factors (i.e., disease burden, user population, and tribal size adjustment), but since the data improvement funds were now a set aside, the TLDC increased the disease burden factor by 5%. The weights for user population and tribal size adjustment remained the same as the 1997 distribution methodology. In October 2001, the IHS Director announced his decision to distribute the CAA funds using the distribution methodology recommended by the TLDC as follows:



C. The Special Diabetes Program for Indians Grant Program

The IHS National Diabetes Program and the IHS Grants Management Branch collaborated to develop the grant program for the Special Diabetes Program for Indians. This was the first large grant program of its kind in the history of the IHS, and a number of administrative processes needed to be developed.

1. The Request for Grant Application

Once tribes, Indian health programs, and urban Indian organizations were determined to be eligible for the funding, the IHS issued a Request for Application (RFA) to all eligible programs. The RFA described eligibility criteria, application requirements, and available resources. Acceptable activities included primary, secondary, and tertiary diabetes prevention and treatment programs and related data collection. Grants under the program were renewable on an annual basis for five years, and covered both direct and indirect costs.

The types of programs eligible for grant funds included:

- IHS programs (both inpatient and outpatient facilities)
- Tribes and tribal health programs operating under a contract, grant, cooperative agreement, or compact with the IHS under the Indian Self-Determination Act
- Urban Indian health organizations, including those functioning under a grant or contract with IHS under Title V of the Indian Health Care Improvement Act, Scope of Grant Programs

Grant applicants were required to submit a program narrative that described the program, work plan, timeline, target audience, evaluation measures and data sources, partnerships and collaborations, key personnel, budget estimates, and results of the IHS Diabetes Care and Outcomes Audit. Each following year, the diabetes grant programs were required to submit an annual progress report that described their goals and objectives, accomplishments, challenges, and problems in achieving program goals and objectives.

When the CAA was enacted in 2001 to provide supplemental funds for the diabetes grant programs, Congress directed the IHS National Diabetes Program to use the funds to build upon the successes of the original Special Diabetes Programs for Indians by using a *best practices approach*. To help the diabetes grant programs implement a best practices approach in their program activities, the IHS National Diabetes Program included a section on 14 consensus-based, Indian health best practices in the RFA for FY 2001–2003. Each year

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Congress directed the IHS National Diabetes Program to use the CAA funds to build upon the successes of the original Special Diabetes Programs for Indians by using a *best practices approach*.

thereafter, the RFA included an assessment tool to help programs identify specific local needs and to evaluate program outcomes.

2. Grant Application Review

The IHS Grants Management Branch reviewed all applications for eligibility and compliance with the RFA. The Chief Medical Officers and Area Diabetes Consultants in each IHS Area Office also reviewed the applications for programmatic compliance. Reviews of the grant applications addressed the soundness of proposed services, compliance with the legislation and grant regulations, and projected expenditures. If the reviewers decided that the proposal needed revisions, the Area Diabetes Consultants provided technical assistance to the applicants to bring proposals into compliance.

3. Monitoring and Review of Diabetes Grant Programs

The IHS Grants Management Branch, Area Diabetes Consultants, and the Chief Medical Officers from each IHS Area were responsible for ongoing monitoring and review of the diabetes grant programs. The IHS Grants Management Branch focused on ensuring that the grants were appropriately managed in accordance with applicable law and management policy. With expertise in financial management and the laws, regulations, and policies governing grants, the IHS Grants Management Branch ensured that the diabetes grant programs followed good business and financial practices and complied with the established grant guidelines. To perform these functions, the IHS Grants Management Branch reviewed reports that were submitted by each diabetes grant program, including an annual progress report, the yearly IHS Diabetes Care and Outcomes Audit, a financial status report, and a cost analysis.

The 12 Area Offices provided programmatic oversight to the diabetes grant programs to ensure that program activities complied with Congressional intent. The Chief Medical Officers and Area Diabetes Consultants from each IHS Area were responsible for program management, including monitoring and evaluating each diabetes grant program's technical performance and program achievements. To address any data and surveillance problems, the IHS National Diabetes Program provided the diabetes grant programs with an optional grant-reporting requirement. As an alternative to reporting diabetes data elements (e.g., amputations, end-stage kidney disease, retinopathy, and obesity), the diabetes grant programs were given the option to report on the 87 data elements from the annual IHS Diabetes Care and Outcomes Audit. Sites without a clinic-based diabetes grant program were allowed to report diabetes audit data from their local IHS or tribal clinic. This reporting option provided each diabetes grant program with the opportunity to contribute valid data related to the diabetes care and outcomes within their communities. In

The 12 Area Offices provided programmatic oversight to the diabetes grant programs to ensure that program activities complied with Congressional intent.

addition, the IHS Grants Management Branch and Area Diabetes Consultants worked in partnership to monitor the diabetes grant programs and provide assistance on matters related to changes in project scope, key personnel, and budget.

4. Budget Cycles and the Payment Management System

The IHS Grants Management Branch offered four cycles for annual renewals of the diabetes grant programs. These cycles enabled the diabetes grant programs to choose an annual renewal date that was consistent with the federal or tribal fiscal year cycle, allowing for better fiscal management and tracking at each program.

The IHS Grants Management Branch also provided diabetes grant programs with technical assistance on the Payment Management System. The Payment Management System is an electronic, centralized grant payment and cash management system. All diabetes grant programs began using the Payment Management System in FY 2002 to comply with instruction from the DHHS.

D. Summary

As directed by Congress, the IHS National Diabetes Program developed and implemented the Special Diabetes Program for Indians for the prevention and treatment of diabetes in AI/AN communities. Through a collaborative, in-depth tribal consultation process that involved the IHS, tribal organizations, and urban Indian health programs, over 300 diabetes grant programs were established throughout Indian Country.

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All diabetes grant programs began using the Payment Management System in FY 2002 to comply with instruction from the DHHS.

Through a collaborative, in-depth tribal consultation process that involved the IHS, tribal organizations, and urban Indian health programs, over 300 diabetes grant programs were established throughout Indian Country.

The mission of the Tribal Leaders Diabetes committee is to make recommendations to IHS on issues concerning diabetes. Members have a vision of American Indians and Alaska Natives living lives that are free of diabetes.



Chapter 3

EVALUATION METHODOLOGY OF THE SPECIAL DIABETES PROGRAM FOR INDIANS

The Indian Health Service (IHS) National Diabetes Program conducted an evaluation of the Special Diabetes Program for Indians to determine whether the initiative met its legislative intent to provide diabetes prevention and treatment services for American Indians and Alaska Natives (AI/ANs) and to measure the outcomes of these activities. Evaluation of this initiative was challenging since the diabetes grant programs developed activities to meet local needs, and therefore a wide variety of services were implemented with the Special Diabetes Program for Indians funding. As a result, the IHS National Diabetes Program designed the evaluation using accepted public health evaluation frameworks and a variety of quantitative and qualitative measures and data sources to measure the extent of services implemented and any outcomes attributable to these efforts.

A. Conceptual Models for the Evaluation

1. Purpose of the Evaluation

The Balanced Budget Act of 1997 required an evaluation of the Special Diabetes Program for Indians and two reports to Congress: an interim report in 2000, and a final report in 2002. In FY 2000, the IHS National Diabetes Program completed the interim report to Congress, which detailed the various programs and activities implemented under the initiative. Subsequent legislation moved forward the deadline for the final report to Congress with the extension of this initiative to FY 2008. However, many stakeholders, including Congressional members, federal agency staff, and tribal leaders, have asked about the progress of the Special Diabetes Program for Indians now that it is in its sixth year. In response, the IHS National Diabetes Program conducted a formal evaluation of the initiative to date and completed this Interim Progress Report for Congress. The objectives of this evaluation were as follows:

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Evaluation of this initiative was challenging since the diabetes grant programs developed activities to meet local needs, and therefore a wide variety of services were implemented with the Special Diabetes Program for Indians funding.

The IHS National Diabetes Program used two accepted health evaluation frameworks in its evaluation of the Special Diabetes Program for Indians:

- 1) the CDC Framework for Program Evaluation in Public Health, and
- 2) the Chronic Care Model.

The task of evaluation has become more complex as the targets of public health actions have expanded beyond infectious diseases to include chronic diseases and the social contexts that influence health disparities.

- 1) To determine whether the Special Diabetes Program for Indians implemented prevention and treatment services to address the growing problem of diabetes in AI/ANs.
- 2) To measure whether the prevention and treatment services implemented through the Special Diabetes Program for Indians have resulted in short-term, intermediate, or long-term positive outcomes.

2. Conceptual Frameworks for the Evaluation

The IHS National Diabetes Program used two accepted health evaluation frameworks in its evaluation of the Special Diabetes Program for Indians: 1) the CDC Framework for Program Evaluation in Public Health, and 2) the Chronic Care Model.

- **CDC Framework for Program Evaluation in Public Health** - The Centers for Disease Control and Prevention (CDC) developed this framework for public health evaluation to ensure that the agencies that conduct evaluations remain accountable and committed to achieving measurable health outcomes.¹ The CDC framework provides an evaluation model for the various diabetes prevention and treatment methods used by AI/AN communities. It also acknowledges that the task of evaluation has become more complex as the targets of public health actions have expanded beyond infectious diseases to include chronic diseases and the social contexts that influence health disparities. The key features of this framework are that it:
 - Uses scientific findings as a basis for public health evaluation.
 - Focuses the evaluation on specific outcomes of interest.
 - Allows findings to be interpreted to determine the practical significance of what has been learned.
 - Can help future programs improve health status for future generations.
 - Identifies effective activities and strategies.
 - Demonstrates the results of resource investments.
 - Stimulates dialogue and raises awareness about diabetes and diabetes prevention.

Central to the CDC framework is the *logic model*. The logic model provides a critical framework to summarize the essential elements of program evaluation:

- Short-term (process) outcomes
- Intermediate outcomes
- Long-term outcomes

This evaluation model provides a framework to understand that the Special Diabetes Program for Indians is a complex initiative and many different outcomes can be measured along a continuum. During the first few years of the program, *short-term outcomes* included accomplishments related to the development and implementation of the initiative, including information on the specific programs and activities implemented. Since the programs were encouraged to implement activities relating to primary, secondary, and tertiary prevention (i.e., prevention, screening and treatment and prevention of complications of diabetes, respectively) and to implement best practice approaches (i.e., programs shown to be effective through research or prior experience), many programs implemented programs with a similar theme, such as foot care, physical activity, and diabetes education services. Many programs also implemented supplemental programs that addressed a certain at-risk group, including different age groups and groups with related co-morbidities.

As the Special Diabetes Program for Indians interventions mature, *intermediate outcomes* can be measured to determine if the programs efforts and activities have resulted in measurable changes in outcomes including improvements in risk factors for the onset of diabetes and diabetes complications.

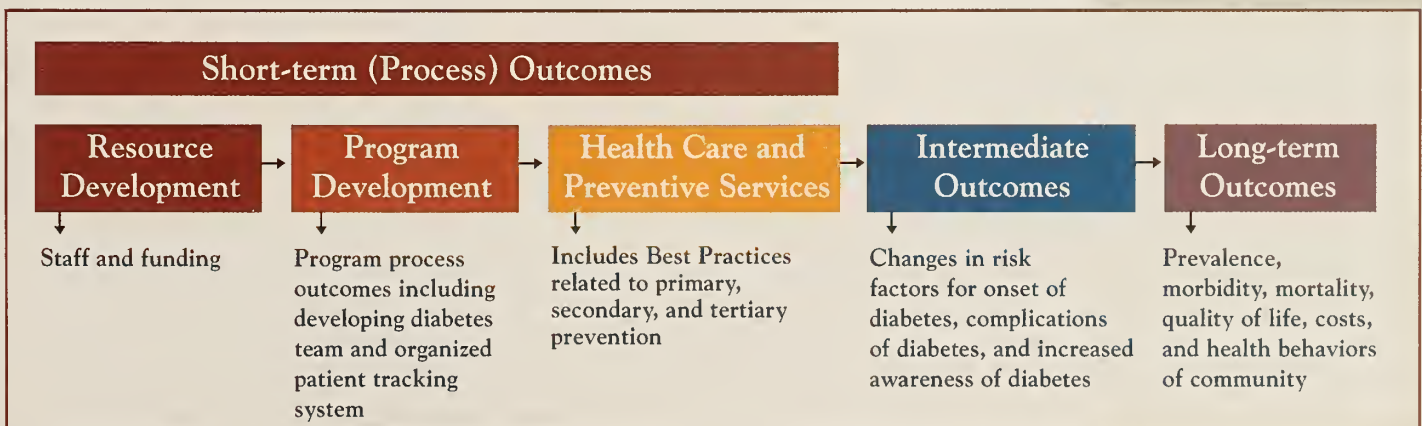
Long-term outcomes, including reduced morbidity and mortality from diabetes, will be measured as data systems have been put in place to measure these important long-term outcomes.

The CDC Public Health Evaluation Framework logic model was applied to the Special Diabetes Program for Indians as follows:

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This evaluation model provides a framework to understand that the Special Diabetes Program for Indians is a complex initiative and many different outcomes can be measured along a continuum.



Since its introduction over a decade ago, managed care organizations, public health agencies, and the World Health Organization have used the Chronic Care Model to evaluate their effectiveness in managing diabetes and other conditions.

- **The Chronic Care Model** – The IHS National Diabetes Program used the Chronic Care Model to evaluate the effectiveness of its *systems of care* in dealing with diabetes as a chronic disease.

The MacColl Institute of the Group Health Cooperative of Puget Sound developed the model to help health systems develop the basic elements necessary to improve care at the community, health system, provider, and patient levels. The model addresses the need to focus on the health care system as a whole to improve care of chronic diseases.² Since its introduction over a decade ago, managed care organizations, public health agencies, and the World Health Organization have used the Chronic Care Model to evaluate their effectiveness in managing diabetes and other conditions.

The Chronic Care Model recommends that health systems implement the following components to effectively address chronic diseases:

- Community resources and policies
- Health system organization
- Self-management support
- Delivery system design
- Decision support
- Clinical information systems

Since the 1980s, the IHS National Diabetes Program has successfully implemented many of the elements that are now part of the Chronic Care Model to improve diabetes care and management. The Special Diabetes Program for Indians, however, allowed more Indian health programs, particularly tribal programs, to build the infrastructure needed to implement these elements. Also, the Special Diabetes Program for Indians enabled the Indian health system, for the first time, to comprehensively measure its effectiveness in implementing these system changes.

A recent independent review using the Chronic Care Model's Assessment of Chronic Illness Care (Version 3.5) revealed that the IHS National Diabetes Program and the Special Diabetes Program for Indians *scored in the highest level* for most of the model's components. (See Appendix II for more information.) With this success, the Special Diabetes Program for Indians made it possible for the Indian health system to serve as an example of a large health system effectively putting the Chronic Care Model into practice.

The Special Diabetes Program for Indians enabled the Indian health system, for the first time, to comprehensively measure its effectiveness in implementing these system changes.

B. Measures and Data Sources for the Evaluation

1. Measures

The IHS National Diabetes Program identified and analyzed the following categories of measures for this evaluation:

- **Short-term outcomes** – Describe programs and activities implemented to prevent and treat diabetes:
 - Systems and diabetes program development
 - Basic clinical care for people with diabetes
 - Diabetes education, activities, and programs
 - Community diabetes awareness and activities
 - Focus on children and youth for diabetes prevention
- **Intermediate outcomes** – Measure whether the programs and activities resulted in the prevention of long-term diabetes complications through improving the following intermediate outcome measures:
 - Blood sugar (glycemic) control
 - Blood pressure control
 - Protein in the urine (proteinuria)
 - Cardiovascular disease risk factors
 - Body Mass Index (a measure of overweight or obesity)
- **Long-term outcomes** – Measure whether activities of the Special Diabetes Program for Indians intervention reduce the morbidity and mortality from diabetes through improvements in:
 - Diabetes prevalence
 - Diabetes mortality
 - Prevalence of complications (e.g., eye disease, amputations, heart disease, stroke, and kidney disease)

2. Data Sources

The IHS National Diabetes Program used a variety of qualitative and quantitative data sources to measure the above outcomes as follows:

Short-term outcomes:

- **Progress Report Questionnaires** – The Special Diabetes Program for Indians Request for Grant Application (RFA) outlined specific annual

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The assessment tool focused on key best practice approaches, which the IHS National Diabetes Program and a consensus panel determined were a basic part of a successful diabetes program according to scientific evidence and data from the IHS Model Diabetes Programs and other diabetes grants programs.

reporting requirements for each diabetes grant program. All diabetes grant programs submitted an annual progress report. The report was composed of a narrative that described program goals and objectives, accomplishments, challenges, and problems in achieving program goals and objectives. Beginning in August 1999, the IHS National Diabetes Program required that diabetes grant programs complete an annual progress questionnaire, in addition to the program narrative. The questionnaires were designed to obtain more detailed quantitative program information in selected areas, such as diabetes program development, settings in which screenings occur, and methods to increase physical activity.

- **Community Assessments** – To help the diabetes grant programs design their new or expanded diabetes programs, the IHS National Diabetes Program designed a community assessment tool for the FY 2001 and 2002 RFAs. The diabetes grant programs used the assessment tool to decide if they wanted to use the additional diabetes funds (from the Consolidated Appropriations Act of 2001) to enhance current diabetes activities or develop one or more new diabetes activities. The questions in the assessment tool focused on key best practice approaches, which the IHS National Diabetes Program and a consensus panel determined were a basic part of a successful diabetes program according to scientific evidence and data from the IHS Model Diabetes Programs and other diabetes grants programs.
- **Regional meeting reports** – To collect qualitative data on the diabetes grant programs, the IHS National Diabetes Program held eight regional meetings that covered all 12 IHS Areas in late 1999 and early 2000. Following the regional meetings, the IHS National Diabetes Program analyzed and compiled the qualitative data into a regional meeting report.
- **Special Diabetes Program for Indians Compendium Report** – In August 2002, the IHS National Diabetes Program completed a compendium report on the activities of 66% of the diabetes grant programs. The report documented the activities and accomplishments of each diabetes grant program.
- **Key informant interviews** – To support the data compiled from the progress report questionnaires, compendium, and community assessment tools, an independent resource conducted targeted key informant interviews at sentinel diabetes grant programs.
- **Annual grant application reviews** – Each year, when the diabetes grant programs applied for Special Diabetes Program for Indians funding, the

Area Diabetes Consultants and Chief Medical Officers reviewed each application for program and fiscal compliance. In addition, the Area Diabetes Consultants and Chief Medical Officers evaluated the diabetes grant programs on their use of the best practice approaches with a simple review tool.

Intermediate Outcomes:

- **Annual IHS Diabetes Care and Outcomes Audit** – Since 1986, the IHS National Diabetes Program has coordinated the annual IHS Diabetes Care and Outcomes Audit. Each year, more than 90% of IHS and tribal facilities, which collectively provide care to over 100,000 AI/ANs with diabetes, review their medical records for compliance with the IHS Diabetes Standards of Care. The audit uses a strict protocol to ensure statistical integrity and comparability of measures over time.

Using data collected from the audit, the IHS National Diabetes Program examined intermediate outcomes from before the Special Diabetes Program for Indians (prior to 1998) and again for 2001 data.

- **Progress Report Questionnaires** – As described above, the Special Diabetes Program for Indians RFA required that diabetes grant programs complete an annual program narrative and progress questionnaire. The questionnaires were designed to obtain more detailed quantitative program information in selected areas. The progress questionnaire responses from the diabetes grant programs were linked to data from the IHS Diabetes Care and Outcomes Audit to obtain information on intermediate outcomes. The IHS National Diabetes Program corroborated the questionnaire responses with key informant interviews, personal interviews, and expert observations by the Area Diabetes Consultants.

Long-term outcomes:

- **RPMS** – The Resource Patient Management System, or RPMS, is the IHS patient computerized database containing clinical and demographic information on both inpatient and outpatient encounters—including laboratory and pharmacy data—for 550 IHS and tribal health facilities. Since the early 1980's, data retrieval has been possible via several search methodologies.
- **Data Warehouse** – Since 2002, the Data Warehouse has incorporated the information stored in the current Indian Health Performance Evaluation System database into a new data warehouse, which is an enhanced national repository of administrative and clinical data. The Data Warehouse provides information to more focused data marts for specific

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Each year, more than 90% of IHS and tribal facilities, which collectively provide care to over 100,000 AI/ANs with diabetes, review their medical records for compliance with the IHS Diabetes Standards of Care.

The IHS National Diabetes Program generates annual diabetes prevalence reports by age, gender, region of the country, prevalence over time, magnitude of change in prevalence over time, and prevalence of diabetes among AI/ANs compared to other racial and ethnic groups.

reporting purposes, such as the Government Performance and Results Act (GPRA) objectives and diabetes surveillance.

- **Specific information on data sources for each long-term outcome measure:**
 - **Diabetes prevalence** – The IHS National Diabetes Program tracks diabetes prevalence data collected from RPMS based on the user population. (The user population reflects the number of people who: 1) are classified as AI/AN; 2) are considered eligible to receive services at IHS, tribal, or urban Indian health facilities; and 3) received services at IHS, tribal, or urban Indian health facilities at least once during the last three fiscal years.) The IHS National Diabetes Program generates annual diabetes prevalence reports by age, gender, region of the country, prevalence over time, magnitude of change in prevalence over time, and prevalence of diabetes among AI/ANs compared to other racial and ethnic groups.
 - **Mortality** – The IHS National Diabetes Program uses data from death certificates to calculate diabetes death rates. Because of underreporting of diabetes on death certificates and racial misclassification, most experts agree that the true diabetes mortality rates are underestimated for AI/ANs in national statistics.
 - **Complications surveillance** – The IHS National Diabetes Program monitors diabetes complications and risk factors at IHS and tribal facilities, thereby providing these facilities with the ability to track their progress in reducing complications and treating the complications at earlier stages. Using Special Diabetes Program for Indians funds, the IHS National Diabetes Program and Indian Health Performance Evaluation System is developing a national clinical data mart that contains aggregate, patient-level information on people with diabetes. This information includes outpatient, hospitalization, and contract care data, allowing the IHS National Diabetes Program to monitor and track the following complications in a more comprehensive manner than has been previously possible:

Most experts agree that the true diabetes mortality rates are underestimated for AI/ANs in national statistics.

Eye disease

People with diabetes need annual eye exams to detect and prevent diabetic eye disease, or retinopathy. The IHS National Diabetes Program tracks individuals who receive eye exams for:

- Extended ophthalmologic work-up (ICD-9 procedure code 95.03)
- Other eye conditions (ICD-9 V80.2)
- Diabetes with ophthalmic manifestations (ICD-9 250.5)
- Other retinal disorders (ICD-9 362)
- Acute and sub-acute iridocyclitis (ICD-9 364)
- Unspecified cataract (ICD-9 366.9)

Lower extremity amputation

The IHS National Diabetes Program monitors and tracks people with diabetes who have undergone lower extremity amputations (ICD-9 procedure codes 84.10–84.19).

Cardiovascular disease (heart disease)

The IHS National Diabetes Program monitors and tracks people with diabetes who have cardiovascular disease complications (ICD-9 codes 390–429).

Cerebrovascular disease (stroke)

The IHS National Diabetes Program monitors and tracks people with diabetes who have cerebrovascular disease complications (ICD-9 codes 430–438).

Kidney disease

The IHS National Diabetes Program uses data from the U.S. Renal Data System (USRDS) to identify the number of people with diabetes who initiated treatment for end-stage kidney disease (with diabetes as the primary cause of kidney failure). The USRDS is a surveillance system for end-stage kidney disease supported by the Centers for Medicare and Medicaid Services (formerly the Health Care Financing Administration [HCFA]). USRDS collects, analyzes, and distributes information about the incidence, prevalence, treatment, and costs of end-stage kidney disease in the U.S.

C. Data Considerations

The distribution of the Special Diabetes Program for Indians funding was based, in part, on the reported prevalence and mortality estimates of diabetes in each IHS Area. Given the need for accurate and complete data to ensure equitable distribution of the funds, the following limitations in diabetes data quickly became apparent:

- A central location for data on diabetes among AI/ANs was not available.
- The majority of primary care data on diabetes were scattered among the individual IHS, tribal, and urban Indian health programs.
- The accuracy of data from most IHS, tribal, and urban Indian health programs had not been evaluated.
- A systematic approach to ensure quality health data for diabetes was not available.
- Racial identifiers were frequently missing or inaccurate in external diabetes data sets.

To address these concerns, the IHS Director set aside funding from the Special Diabetes Program for Indians for the purpose of improving data collection within each IHS Area. Complete and accurate data on diabetes would permit the diabetes grant programs to: 1) estimate the true impact of diabetes; 2) plan appropriate programs to address the impact of diabetes; and 3) evaluate the success of local diabetes prevention and treatment endeavors.

Each IHS Area was provided the opportunity to use the data improvement funds to verify, validate, and refine data on diabetes prevalence, complications, surveillance, and mortality. The data improvement funds also were used to enhance tribal participation in the IHS Diabetes Care and Outcomes Audit, which allows diabetes grant programs to obtain data on their level of diabetes care and compare it to other programs in the region and throughout the Indian health system. In addition, the data improvement funds helped diabetes grant programs identify tribal resources, hire personnel skilled at data systems and analysis, and expand opportunities to provide training and technical assistance to other tribes.

The following four examples demonstrate how the **data improvement funds** were used in the Special Diabetes Program for Indians:

Each IHS Area was provided the opportunity to use the data improvement funds to verify, validate, and refine data on diabetes prevalence, complications, surveillance, and mortality.

1. IHS Area Data Improvement Projects

Diabetes grant programs in many IHS Areas have accomplished one or more of the following data improvements with the Special Diabetes Program for Indians funds:

- Improved and updated patient registries and patient care record systems
- Developed new systems to extract data for reporting requirements
- Examined the accuracy of diabetes data
- Provided training in patient care registry systems, data use, IHS Diabetes Care and Outcomes Audit, and other epidemiology-related activities

For example, the Albuquerque Area provided hands-on training on RPMS with a focus on using the diabetes management component of RPMS to retrieve data for the IHS Diabetes Care and Outcomes Audit. In addition, the Albuquerque Area hired a registered nurse who conducted regular site visits to IHS Service Units and tribal sites to provide technical assistance on diabetes data management.

The California Area utilized their data funding to form a partnership with a data improvement project located at the Northwest Area Indian Health Board in Portland, Oregon (see description below). Like the Albuquerque Area, they have also provided local training on RPMS data entry and retrieval.

2. Western Tribal Diabetes Project, Northwest Portland Area Indian Health Board

The Northwest Portland Area Indian Health Board, located in Portland, Oregon, developed the Western Tribal Diabetes Project in 1998 with data improvement funds from the Special Diabetes Program for Indians. The goal of the project was to develop a sustainable and systematic approach to capture diabetes data among AI/AN communities located in the Northwest and California by providing technical assistance on several data improvement activities. First, the project developed tools, conducted site visits, and provided ongoing technical assistance to help the diabetes grant programs develop electronic diabetes registries to track data on people with diabetes and use the data for program planning, evaluation, quality improvement, and case management. Second, the project helped the diabetes grant programs develop plans to build an infrastructure for ongoing data surveillance. Third, the project developed a database to help the diabetes grant programs track data on the prevalence of diabetes and related complications over time. The database

automatically performs statistical calculations on the data and is designed to help individuals, with various levels of skill, read and apply the statistical information. Tribal epidemiology centers in the Nashville and Bemidji Areas are using Special Diabetes Program for Indians funds to replicate this successful model.

3. Seattle Indian Health Board

In 2002, using Special Diabetes Program for Indians funding, the Seattle Indian Health Board, located in Seattle, Washington, developed and produced a web-based diabetes survey and audit tool for the diabetes grant programs that delivered non-clinical services. The tool was designed to collect descriptive program data, such as program services, data collection capabilities and methods, client demographics, and service volume.

4. National Indian Council on Aging (NICOA)

The IHS National Diabetes Program, in partnership with the National Indian Council on Aging, initiated a project to utilize Geographic Information Systems (GIS) technology to map the problem of diabetes in AI/AN communities. In addition, NICOA and tribally-operated regional epidemiology centers worked in partnership to refine the capabilities of RPMS in capturing diabetes data. NICOA also worked with IHS, tribal, and urban health clinics to develop an automated diabetes outcome and audit measures report using RPMS.

D. Summary

The IHS National Diabetes Program evaluated the Special Diabetes Program for Indians using accepted frameworks for public health evaluation and incorporated quantitative and qualitative methodologies to provide information on short-term, intermediate, and long-term outcomes. Through improvements made to diabetes data in each IHS Area and using the models and data sources described in this chapter, the IHS National Diabetes Program reviewed the implementation of programs and activities for diabetes prevention and treatment under the Special Diabetes Program for Indians, determined the clinical outcomes that resulted from these activities, and established baseline parameters for measurement of long-term outcomes. The findings of the IHS National Diabetes Program evaluation of the Special Diabetes Program for Indians are highlighted in the following chapters.

Chapter 4

OUTCOMES OF THE SPECIAL DIABETES PROGRAMS FOR INDIANS

The Indian Health Service (IHS) National Diabetes Program evaluated the Special Diabetes Program for Indians using accepted frameworks for public health evaluation and incorporated quantitative and qualitative methodologies to provide information on short-term, intermediate, and long-term outcomes. The findings of the IHS National Diabetes Program evaluation of the Special Diabetes Program for Indians are highlighted in this and the next chapters.

CHAPTER FOUR

Outcomes

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Short-term outcomes describe programs and activities implemented to prevent and treat

diabetes, such as system changes, clinical activities, availability of services and therapies, education services, nutrition and healthy eating programs, physical activity and community awareness programs, and special emphasis on children and youth.

Short-Term Outcomes

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Intermediate outcomes measure whether interventions resulted in improvements in clinical measures,

such as blood sugar control, blood pressure control, protein in the urine, cardiovascular disease risk factors, and Body Mass Index (a measure of overweight and obesity).

Intermediate Outcomes

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Long-term outcomes measure whether programs and interventions eventually reduce the morbidity and mortality from diabetes

in a population. This can be measured through improvements in diabetes prevalence, mortality, earlier diagnosis, complications rates, improved health costs, and improved health behaviors of the community.

Long-Term Outcomes

Short-term Outcomes of the Special Diabetes Program for Indians

The IHS National Diabetes Program was able to measure many short-term outcomes in its evaluation of the Special Diabetes Program for Indians.

What are short-term outcomes? Short-term outcomes describe programs and activities implemented to prevent and treat diabetes, such as system changes, clinical activities, availability of services and therapies, education services, nutrition and healthy eating programs, and physical activity and community awareness programs. Many of these programs and activities include a special emphasis on children and youth.

The IHS National Diabetes Program was able to measure many short-term outcomes in its evaluation of the Special Diabetes Program for Indians.

This section includes data on the following categories of **short-term outcomes**:

- Systems and diabetes program development
- Basic clinical care for people with diabetes
- Diabetes education, activities, and programs
- Community diabetes awareness and activities
- Focus on children and youth for diabetes prevention

Slides in this section:

Availability of **basic clinical exams** increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Screening of children and youth for risk factors of developing diabetes occurred with implementation of the Special Diabetes Program for Indians.

Availability of **newer medications and therapies for diabetes treatment** increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Screening for diabetes occurred in a variety of locations with implementation of the Special Diabetes Program for Indians.

Availability of **laboratory tests to assess diabetes control and complications** increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Use of key elements of quality diabetes care increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Screening for diabetes increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Multidisciplinary diabetes team staffing increased with implementation of the Special Diabetes Program for Indians.

Adults and elders were screened for a variety of risk factors for diabetes with implementation of the Special Diabetes Program for Indians.

Conduct of community diabetes needs assessments increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Availability of **nutrition education and counseling services by registered dietitians and public health nutritionists** increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Partnership of tribal leaders and tribal members to develop diabetes-related activities increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Local community partnerships increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Partnerships with outside organizations increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Policies addressing diabetes prevention and care have increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Availability of organized diabetes education programs and support services in clinics and communities increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Availability of culturally appropriate diabetes education increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

A variety of methods for diabetes education were provided with implementation of the Special Diabetes Program for Indians.

Availability of continuing education opportunities for health care providers increased with implementation of the Special Diabetes Program for Indians.

A variety of traditional approaches were implemented with the Special Diabetes Program for Indians.

Many diabetes primary prevention activities were established with implementation of the Special Diabetes Program for Indians.

Community physical fitness activities increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Availability of community nutrition services increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Programs collaborated with the U.S. Department of Agriculture to improve nutrition in AI/AN communities with implementation of the Special Diabetes Program for Indians.

Diabetes awareness activities increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Diabetes primary prevention programs for children and youth increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Community-based healthy eating programs for children, youth and families increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2001

Screening and management of overweight and obesity among children and youth increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Nutrition education services for children and youth increased with implementation of the Special Diabetes Program for Indians. Comparison: Before 1998 vs 2002

Physical activity programs for children and youth increased significantly with implementation of the Special Diabetes Program for Indians. Comparison: 1998 vs 2002

Breastfeeding promotion increased with implementation of the Special Diabetes Program for Indians.

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Availability of *basic clinical exams* increased with implementation of the *Special Diabetes Program for Indians*.

Comparison: Before 1998 vs 2002

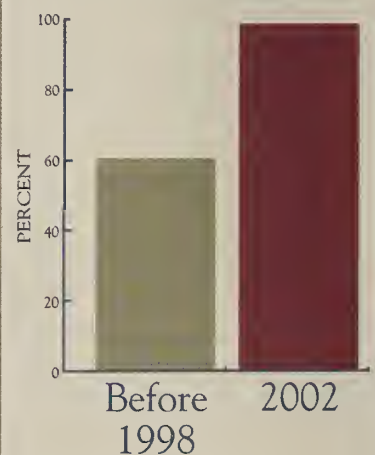
Why is this important?

Quality care for people with diabetes includes yearly examination of the eyes, feet, and teeth to prevent complications.

- Comprehensive foot care programs can reduce amputations by 45–85%.¹
- Detecting and treating diabetic eye disease with laser therapy can reduce severe vision loss by 50–60%.²
- Detecting and treating severe periodontal (gum) disease can prevent loss of teeth in up to 33% of people with diabetes.³

Regular foot examinations reduce the risk of chronic ulcerative lesions and amputations. Diabetes grant programs used funding to make foot examinations available to people with diabetes. In 2002, 96% of the diabetes grant programs reported availability of foot exams by a podiatrist or other foot specialist as compared with 60% before the SDPI.

Availability of Foot Exams by Foot Specialist



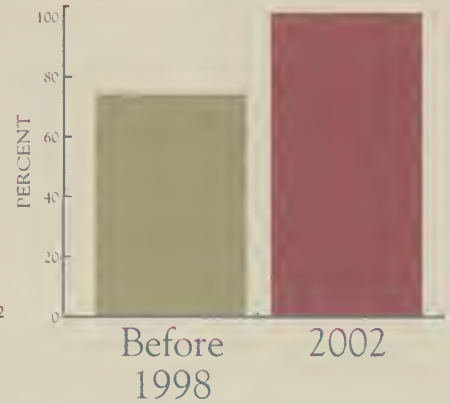
Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program
SDPI Evaluation, 1997–2002

The Sonoma County Health Clinic in Santa Rosa, California is one of many tribal health facilities that dramatically reduced the number of amputations due to diabetes.

Regular eye examinations reduce the risk of retinopathy that can lead to blindness. Diabetes grant programs used funding to make eye examinations available to people with diabetes. In 2002, 97% of the diabetes grant programs reported availability of yearly eye exams by an eye specialist as compared with 75% before the SDPI.

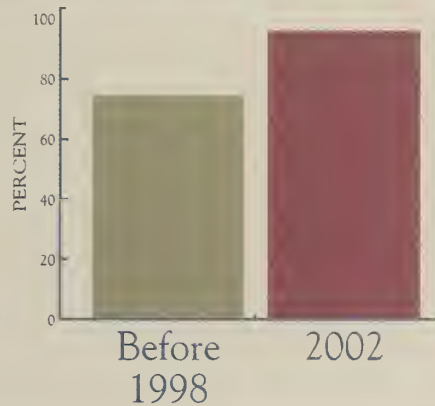
Availability of Eye Exams by an Eye Specialist

Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002



Availability of Dental Exams by a Dentist

Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002



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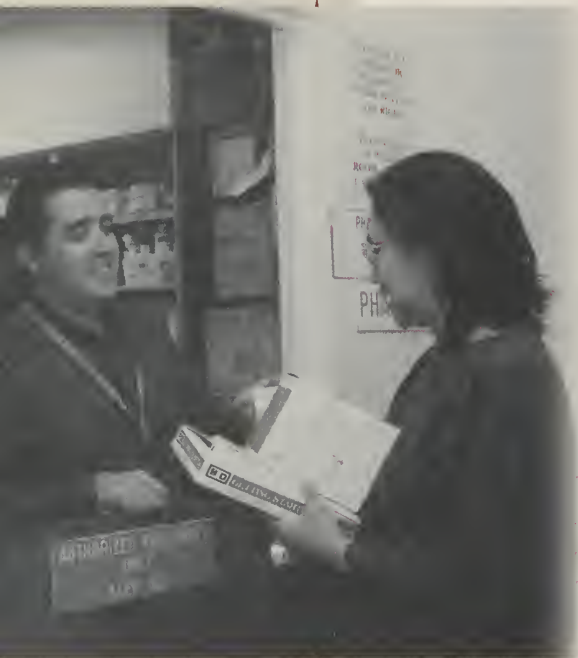
Regular dental examinations reduce the risk of severe periodontal disease and ultimately tooth loss. In 2002, 91% of the diabetes grant programs reported availability of yearly dental exams as compared with 74% before the SDPI.

More people were able to get yearly examinations of their eyes, feet, and teeth to prevent complications.



Availability of newer medications and therapies for diabetes treatment increased with implementation of the Special Diabetes Program for Indians.

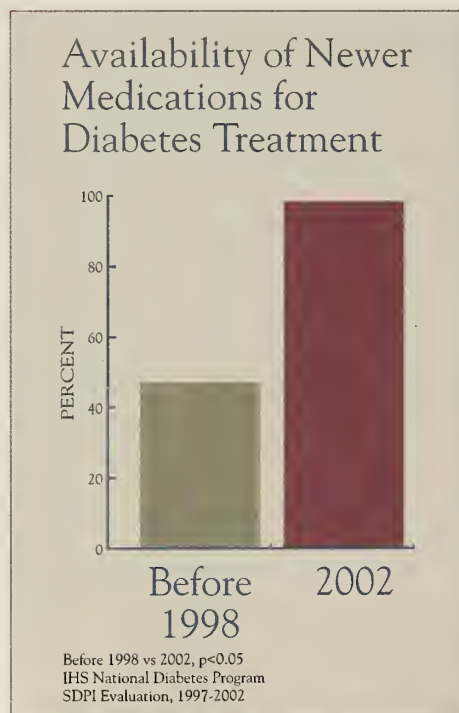
Comparison: Before 1998 vs 2002



Phoebe Joe receives diabetes medicine at the Isleta Pueblo Clinic.

Why is this important?

Medications that lower blood glucose, blood pressure, and blood lipids play an important role in diabetes management. A person with diabetes takes an average of 8–10 medications at any given time. The United Kingdom Prospective Diabetes Study and the Diabetes Control and Complications Study demonstrated that control achieved with medication can significantly reduce the risk of complications.⁴ In addition, Medical Nutrition Therapy for people with diabetes has been shown to improve clinical outcomes and possibly decrease the cost of managing diabetes.⁵ The Special Diabetes Program for Indians provided funding for programs to purchase newer medications that have been shown to be more effective.

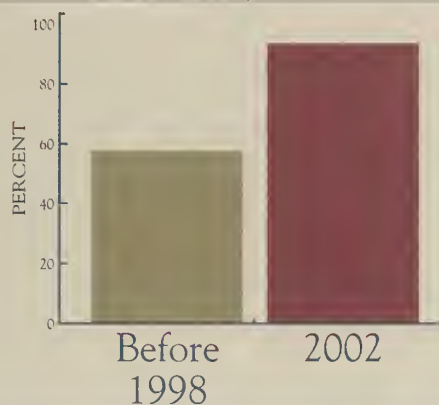


Newer medications improve glycemic control, thereby reducing the risk of the complications of diabetes. Diabetes grant programs used funding to make newer medications available to people with diabetes. In 2002, 96% of the diabetes grant programs reported increased availability of newer diabetes medications as compared with 48% before the SDPI.

Availability of Newer Lipid Lowering Medications

Before 1998 vs 2002, $p=0.019$

IHS National Diabetes Program SDPI Evaluation, 1997-2002

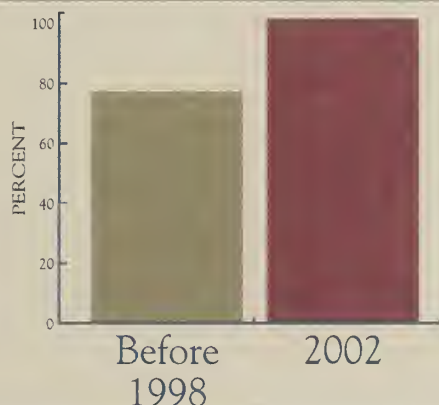


Newer lipid lowering medications help decrease the risk of complications associated with cardiovascular disease by improving cholesterol and lipid levels. Diabetes grant programs used funding to make newer lipid lowering medications available to people with diabetes. In 2002, 96% of the diabetes grant programs reported availability of newer lipid lowering medications as compared with 58% before SDPI.

Availability of Ace Inhibitors

Before 1998 vs 2002, $p=0.056$

IHS National Diabetes Program SDPI Evaluation, 1997-2002

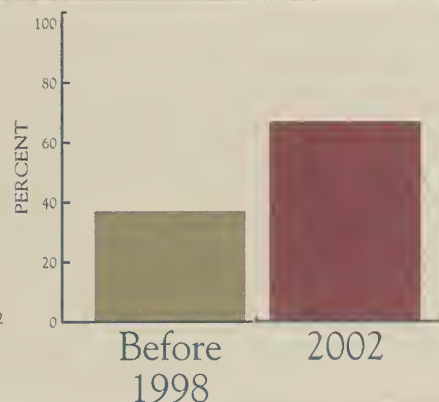


ACE inhibitors are medications used to control blood pressure and help prevent or delay progression to diabetic kidney disease. Diabetes grant programs used funding to make ACE inhibitors available for treatment of people with diabetes. In 2002, 97% of the diabetes grant programs reported increased availability of ACE inhibitors as compared with 76% before the SDPI.

Availability of Medical Nutrition Therapy Services

Before 1998 vs 2002, $p<0.001$

IHS National Diabetes Program SDPI Evaluation, 1997-2002



Medical Nutrition Therapy improves clinical outcomes and likely decreases the cost of managing diabetes. Diabetes grant programs used funding to make Medical Nutrition Therapy services available to people with diabetes. In 2002, 68% of the diabetes grant programs reported increased availability of Medical Nutrition Therapy services as compared with 36% before the SDPI.

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Availability of *laboratory tests to assess diabetes control and complications increased with implementation of the Special Diabetes Program for Indians.*

Comparison: Before 1998 vs 2002

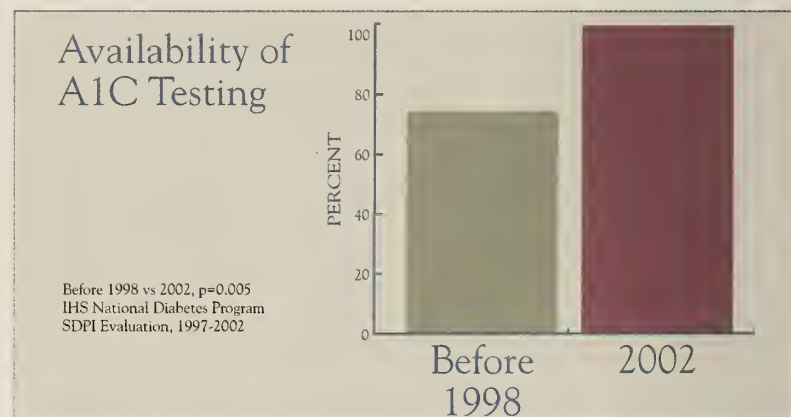


The diabetes grant programs increased the number of people who received regular blood screening, including checks of A1C.

Why is this important?

Performing regular laboratory testing on people with diabetes is an important part of quality diabetes care. Recommended laboratory tests include:

- A1C test – In general, for every 1% drop in the absolute value of A1C, the risk of microvascular complications is reduced by 40%.⁶
- Cholesterol and blood lipids – Improved control reduces cardiovascular complications by 20–50%.⁷
- Urinalysis/microalbumin – Detecting and treating early diabetic kidney disease can reduce the development of kidney failure by 30–70%.⁸

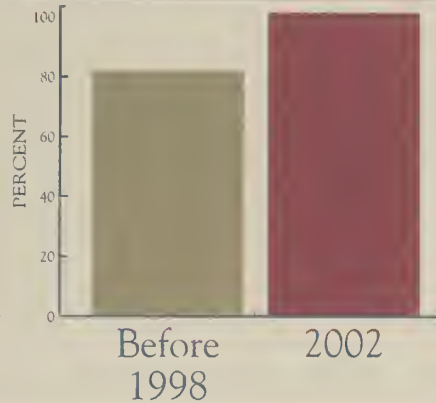


A1C measures glycemic control over the past 2–3 months. Diabetes grant programs used funding to increase the availability of A1C testing. In 2002, 99% of the diabetes grant programs reported availability of A1C testing as compared with 72% before the SDPI.

Availability of Lipid Testing

Before 1998 vs 2002, $p < 0.001$

IHS National Diabetes Program SDPI Evaluation, 1997-2002

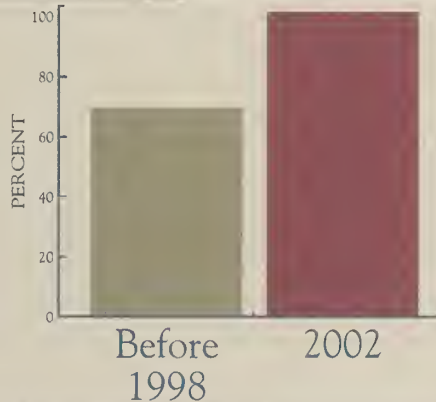


Tests for lipids, such as cholesterol, triglycerides, and LDL, are an important part of the risk assessment for cardiovascular disease. Diabetes grant programs used funding to increase the availability of lipid testing. In 2002, 99% of the diabetes grant programs reported availability of lipid testing as compared with 83% before the SDPI.

Availability of Microalbumin Testing

Before 1998 vs 2002, $p < 0.001$

IHS National Diabetes Program SDPI Evaluation, 1997-2002

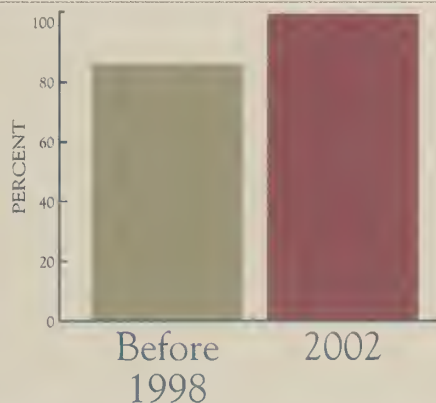


A microalbumin test measures very small amounts of protein in the urine. It is an important way to check for early, potentially reversible, kidney disease. Diabetes grant programs used funding to increase the availability of microalbumin testing. In 2002, 98% of the diabetes grant programs reported availability of microalbumin testing as compared with 70% before the SDPI.

Availability of Urinalysis Testing

Before 1998 vs 2002, $p < 0.001$

IHS National Diabetes Program SDPI Evaluation, 1997-2002



Urinalysis is an important screening test to assess urine protein level and the risk of renal disease. Diabetes grant programs used funding to increase the availability of urinalysis testing. In 2002, 99% of the diabetes grant programs reported availability of urinalysis testing as compared with 86% before the SDPI.

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Screening for diabetes increased with implementation of the Special Diabetes Program for Indians.

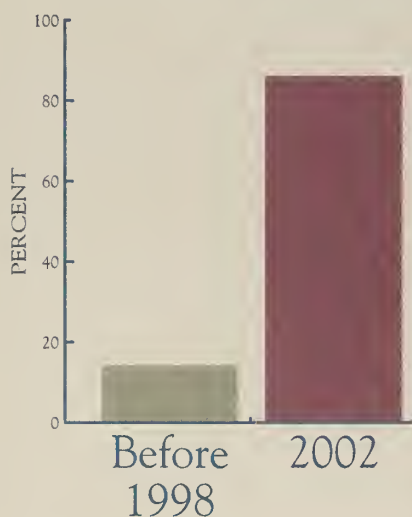
Comparison: Before 1998 vs 2002

Why is this important?

Screening programs to identify people who have diabetes or are at risk for developing diabetes is an important step in preventing and treating diabetes.

- Screening provides an opportunity to encourage individuals to make lifestyle changes that can prevent or delay the onset of diabetes, as demonstrated in the Diabetes Prevention Program.⁹
- Screening provides an opportunity to link people with diabetes to effective treatment programs.
- Over one-third of people with diabetes do not know that they have the disease; screening provides an opportunity to diagnose diabetes as early as possible to treat and prevent or delay complications.¹⁰

Screening for Diabetes and Pre-diabetes Increased



Before 1998 vs 2002, $p < 0.001$

IHS National Diabetes Program SDPI Evaluation, 1997-2002

Increased screening for diabetes and pre-diabetes in AI/AN communities occurred with implementation of the SDPI. In 2002, 86% of the diabetes grant programs reported that general screening for diabetes and pre-diabetes was available as compared with 14% before the SDPI.

Prevention of Diabetes Now a Reality

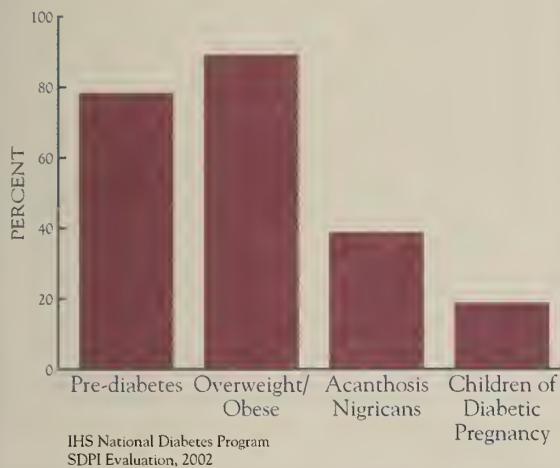
The Diabetes Prevention Program, a large clinical study published in the NEJM in February 2002, demonstrated that the onset of diabetes can be prevented or delayed through lifestyle changes or the use of medication. The goal of the study was to determine if diabetes could be prevented in people who are at high-risk for developing diabetes (i.e., individuals with impaired

glucose tolerance or pre-diabetes). Participants who made lifestyle changes (eating fewer calories and walking 30 minutes 5 times a week) reduced their risk of getting type 2 diabetes by 58%. Those on metformin, a medicine used to treat diabetes, reduced their risk of getting type 2 diabetes by 31%.¹¹ Other large studies have shown similar results.¹²

These positive results provide hope to AI/AN communities that the epidemic of diabetes can be stopped. To prevent diabetes by implementing the results of these studies, communities must first find those individuals who are at highest risk. This is accomplished through widespread screening efforts.

Adults and elders were screened for a variety of risk factors for diabetes with implementation of the Special Diabetes Program for Indians.

Screening Adults (26-54 years) at High Risk for Diabetes



Why is this important?

Screening for the risks of diabetes in adults and elders identifies people at an earlier stage, which allows for intervention to prevent complications.¹³ Some of the risk factors for diabetes in adults and elders are different than in children and youth.

In 2002, the diabetes grant programs reported that they screened adults (aged 26–54 years) for the following major risk factors:

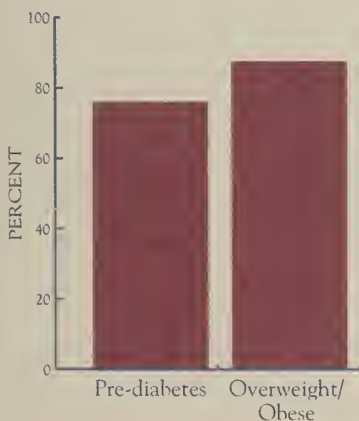
- 78% screened for pre-diabetes
- 91% screened for overweight and obesity
- 39% screened for acanthosis nigricans
- 18% screened for offspring of a diabetic pregnancy

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Screening Elders (55+ Years) at High Risk for Diabetes



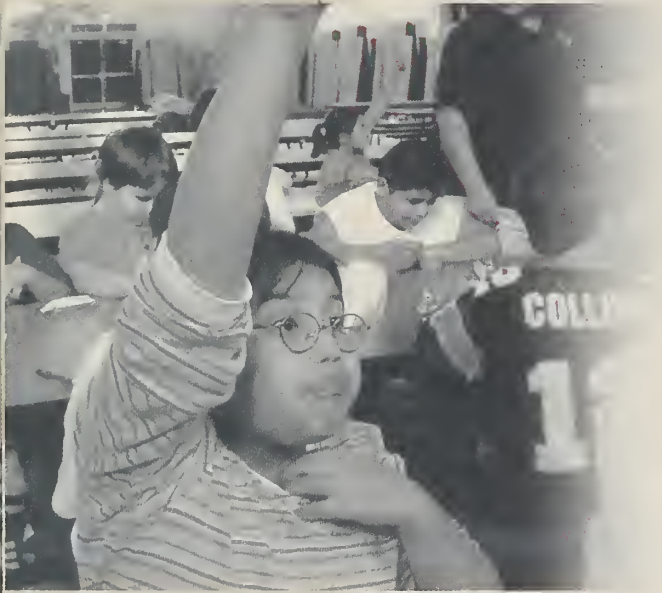
Elders have higher rates of diabetes. In 2002, the diabetes grant programs reported that they screened elders (aged 55 years and older) for the following major risk factors:

- 76% screened for pre-diabetes
- 88% screened for overweight and obesity

Screenings took place at many locations, and included people of all age groups.



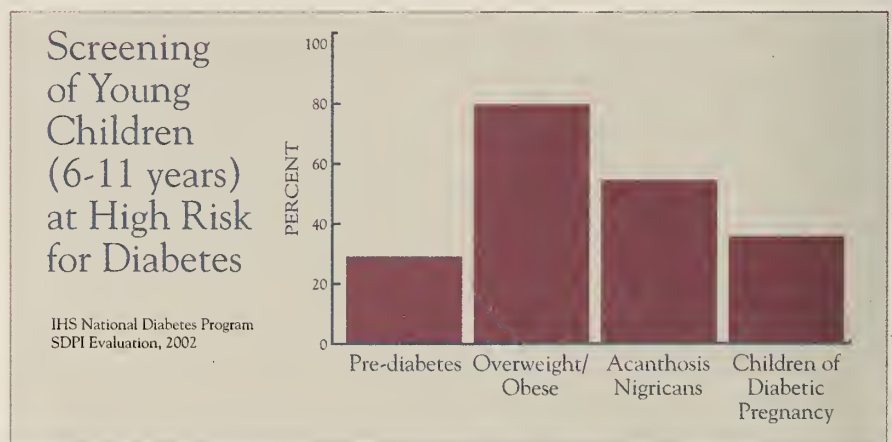
Screening of children and youth for risk factors for developing diabetes occurred with implementation of the Special Diabetes Program for Indians.



The "Cherokee Choices" program at the Eastern Band of Cherokee Tribe screens youth for diabetes and teaches them how to prevent it.

Why is this important?

Screening for the risks of diabetes in children and youth identifies problems early on and allows for prevention and intervention. Some of the risk factors for diabetes in children and youth are different than in the adult population.¹⁴

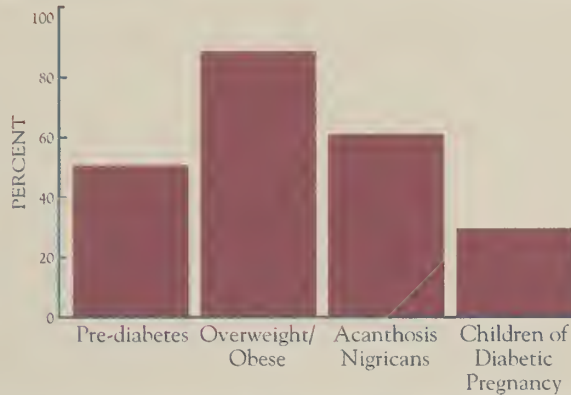


In 2002, the diabetes grant programs reported that they now screen young children (aged 6–11 years) for the following major risk factors:

- 29% screened for pre-diabetes
- 80% screened for overweight and obesity
- 54% screened for acanthosis nigricans
- 36% screened for offspring of a diabetic pregnancy

Screening Adolescents (12-17 years) at High Risk for Diabetes

IHS National Diabetes Program
SDPI Evaluation, 2002



In 2002, the diabetes grant programs reported that they screened adolescents (aged 12–17 years) for the following major risk factors:

- 51% screened for pre-diabetes
- 88% screened for overweight and obesity
- 61% screened for acanthosis nigricans
- 32% screened for offspring of a diabetic pregnancy

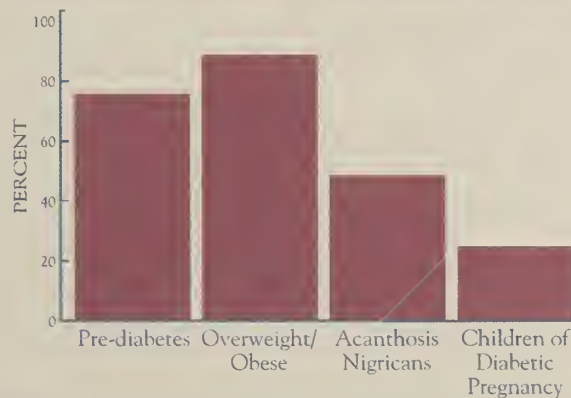
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Screening Young Adults (18-25 years) at High Risk for Diabetes

IHS National Diabetes Program
SDPI Evaluation, 2002



In 2002, the diabetes grant programs reported that they screened young adults (aged 18–25 years) for the following major risk factors:

- 75% screened for pre-diabetes
- 88% screened for overweight and obesity
- 47% screened for acanthosis nigricans
- 24% screened for offspring of a diabetic pregnancy

Screening for diabetes occurred in a variety of locations with implementation of the Special Diabetes Program for Indians.

Diabetes teams were established including this one at the Sioux Sanatorium Hospital in Rapid City, South Dakota.

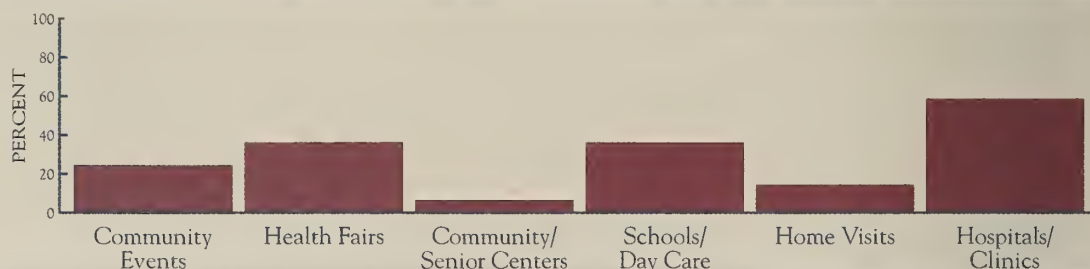


Why is this important?

Screening should be done in an efficient and convenient way. Because many AI/ANs do not access medical clinics on a regular basis, it is important to provide screening for diabetes in other community settings. It is also important to focus screening locations based on age group as community members of different ages frequent different settings in AI/AN communities.

Where Screening for Diabetes Occurs in Young Children (6-11 years)

IHS National Diabetes Program SDPI Evaluation, 2002

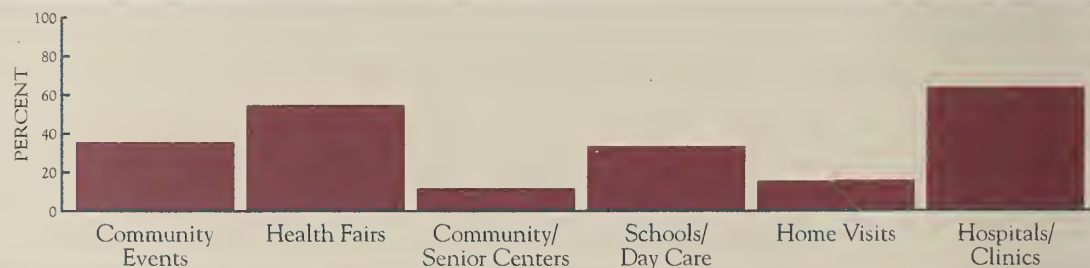


Locations for screening young children: In 2002, the diabetes grant programs reported that they screened young children (aged 6–11 years) for diabetes at the following locations:

- 22% screened young children at community events
- 37% screened at health fairs
- 7% screened at community and senior centers
- 37% screened at schools and day cares
- 13% screened at home visits
- 59% screened at hospitals and clinics

Where Screening for Diabetes Occurs in Adolescents (12-17 years)

IHS National Diabetes Program SDPI Evaluation, 2002



Locations for screening adolescents: In 2002, the diabetes grant programs reported that they screened adolescents (aged 12–17 years) for diabetes at the following locations:

- 36% screened adolescents at community events
- 55% screened at health fairs
- 12% screened at community and senior centers
- 33% screened at schools and day cares
- 15% screened at home visits
- 62% screened at hospitals and clinics

Where Screening for Diabetes Occurs in Young Adults (18-25 years)

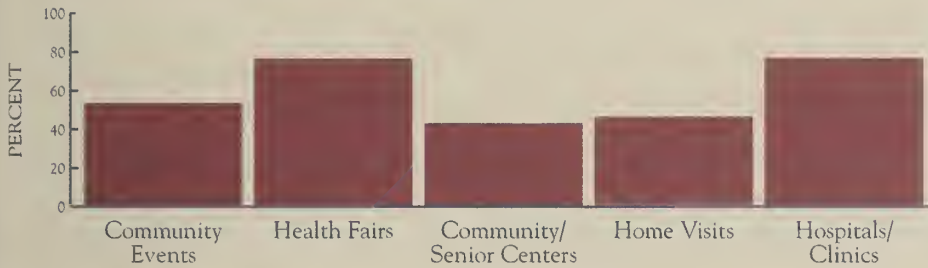
IHS National Diabetes Program SDPI Evaluation, 2002



Locations for screening young adults: In 2002, the diabetes grant programs reported that they screened young adults (aged 18–25 years) for diabetes at the following locations:

- 56% screened young adults at community events
- 75% screened at health fairs
- 25% screened at community and senior centers
- 12% screened at schools and day cares
- 31% screened at home visits
- 73% screened at hospitals and clinics

Where Screening for Diabetes Occurs in Adults (26-54 years)



IHS National Diabetes Program SDPI Evaluation, 2002

Locations for screening adults: In 2002, the diabetes grant programs reported that they screened adults (aged 26-54 years) for diabetes at the following locations:

- 56% screened adults at community events
- 76% screened at health fairs
- 41% screened at community and senior centers
- 46% screened at home visits
- 76% screened at hospitals and clinics

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Where Screening for Diabetes Occurs in Elders (55+ years)



IHS National Diabetes Program SDPI Evaluation, 2002

Locations for screening elders: In 2002, the diabetes grant programs reported that they screened elders (aged 55 years and older) for diabetes at the following locations:

- 55% screened elders at community events
- 74% screened at health fairs
- 65% screened at community and senior centers
- 59% screened at home visits
- 75% screened at hospitals and clinics

Use of key elements of quality diabetes care increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

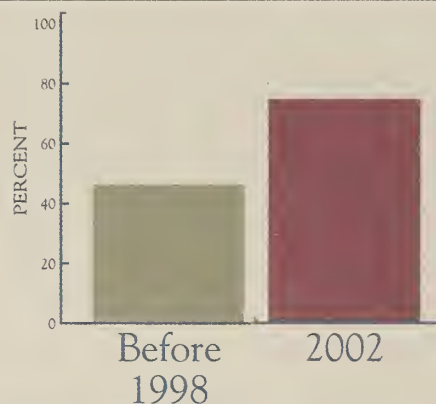
A systems approach to caring for people with diabetes results in better outcomes. A systems approach includes certain key elements:

- Diabetes registry
- Diabetes team
- Diabetes clinic
- Use of a diabetes flowsheet¹⁵

A recent independent review of the Special Diabetes Program for Indians using the Chronic Care Model Assessment of Chronic Illness Care (Version 3.5) revealed that the IHS National Diabetes Program and the SDPI scored in the highest level for most of the model's components.¹⁶

Use of Diabetes Flow Sheet

Before 1998 vs 2002, $p < 0.05$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



Use of diabetes flowsheets improves clinic efficiency and accuracy by organizing complex information in the medical record so that it is accessible to multiple providers. Diabetes grant programs used funding to implement use of diabetes flowsheets. In 2002, 77% of the diabetes grant programs reported using diabetes flowsheets as compared with 46% before the SDPI.

Use of a Diabetes Registry to Count and Track People with Diabetes

Before 1998 vs 2002, $p < 0.02$

IHS National Diabetes Program SDPI Evaluation, 1997-2002

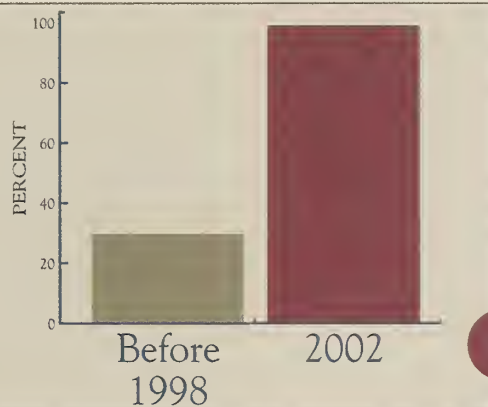


Use of diabetes registries is an important way to track people with diabetes in a community and determine whether these individuals have received recommended diabetes services. Diabetes grant programs used funding to establish diabetes registries. In 2002, 98% of the diabetes grant programs reported using a diabetes registry as compared with 44% before the SDPI.

Diabetes Team to Provide Organized Clinical Care

Before 1998 vs 2002, $p < 0.001$

IHS National Diabetes Program SDPI Evaluation, 1997-2002

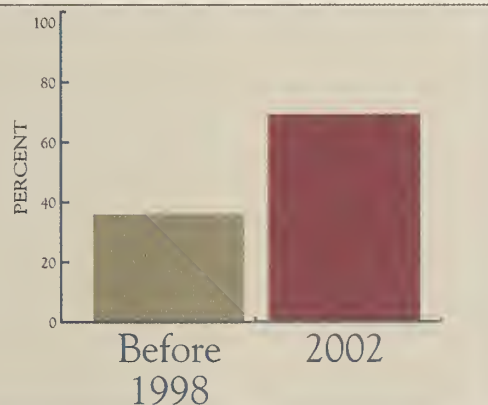


A diabetes team improves care by providing a multidisciplinary, comprehensive approach. Diabetes grant programs used funding to establish diabetes teams. In 2002, 94% of the diabetes grant programs reported having a diabetes team as compared with 29% before the SDPI.

Diabetes Clinic to Provide Organized Clinical Care

Before 1998 vs 2002, $p < 0.001$

IHS National Diabetes Program SDPI Evaluation, 1997-2002



Diabetes clinics enhance diabetes care by improving efficiency and convenience for the patient. Diabetes grant programs used funding to establish diabetes clinics. In 2002, 69% of the diabetes grant programs reported having a diabetes clinic as compared with 37% before the SDPI.

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Multidisciplinary diabetes team staffing increased with implementation of the Special Diabetes Program for Indians.

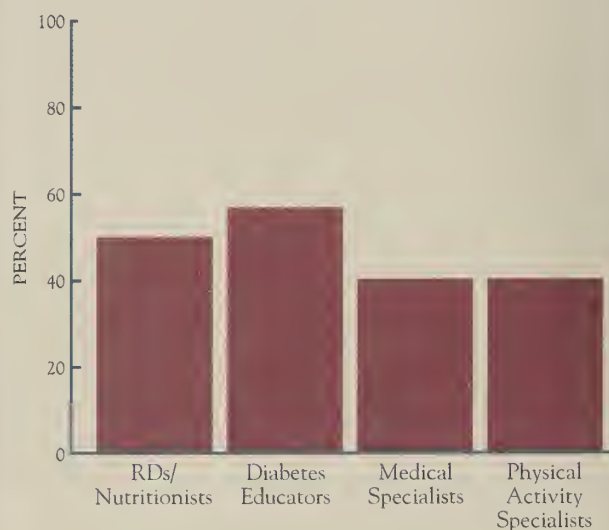
Why is this important?

Because diabetes is a chronic condition, it requires ongoing medical care and patient self-management education to prevent acute and long-term complications. Diabetes medical care and self-management education is most effective when delivered by a multidisciplinary health care team. This health care team should include, but is not limited to, physicians, nurses, dietitians, and mental health specialists with expertise and a special interest in diabetes.¹⁷

In 2002, the diabetes grant programs reported that they were able to enhance their multidisciplinary diabetes teams by adding one or more key staff:

- 49% of the diabetes grant programs hired Registered Dietitians or Public Health Nutritionists
- 58% hired diabetes educators
- 40% hired medical specialists (e.g., podiatrists)
- 40% hired physical activity specialists

Programs Adding New Positions to Diabetes Teams by Type



Conduct of community diabetes needs assessments increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

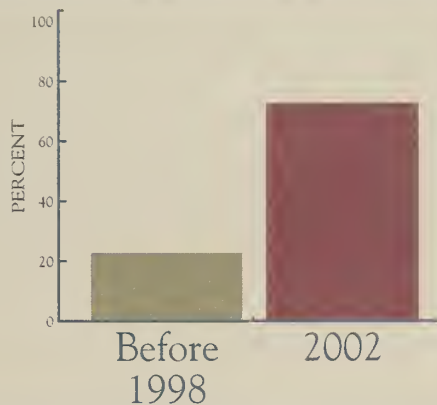
Why is this important?

Assessment is the first step in program planning.¹⁸ An assessment tool was included in the Special Diabetes Program for Indians Request for Grant Application (RFA) beginning with the FY 2001 RFA. This community assessment tool included questions on key activities known to be indicators of successful diabetes programs. The purpose of the tool was to help communities

identify diabetes-related needs so that they could plan for how to best use their grant funds.

Conduct of Community Needs Assessments

Before 1998 vs 2002, $p=0.02$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



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More health programs collaborated with other tribal programs to reach more people.

Community diabetes needs assessments can be used to:

- Identify the groups of people most affected by diabetes in AI/AN communities
- Identify the strengths of current diabetes programs and gaps in services
- Discover unmet community needs
- Determine the highest priority or the most important needs of diabetes grant programs and local communities
- Aid decision-making on the use of diabetes grant funding to meet community needs, such as plans to support clinical services

Availability of nutrition education and counseling services by registered dietitians and public health nutritionists increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Randomized clinical trials, such as the Diabetes Control and Complications Trial and the United Kingdom Prospective Diabetes Study, have demonstrated two key points related to nutrition:

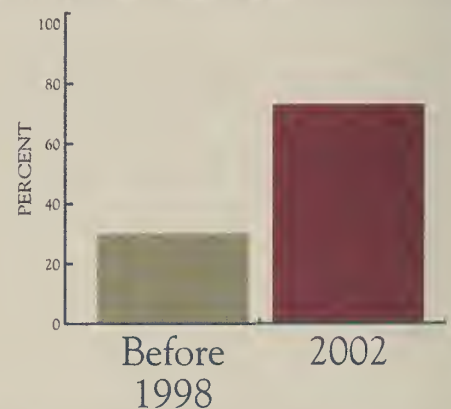
- Medical Nutrition Therapy (MNT) is an essential part of successful diabetes management
- Registered Dietitians, along with the patient, family, and other clinical providers, play a key role in clinical decision-making for quality diabetes care¹⁹



Tony Grant of the Salish Kootenai Tribe says he used to be a "meat and potatoes man." After learning about good nutrition, he started eating more fresh vegetables and fruits, and lost 70 pounds.

Registered Dietitian or Public Health Nutritionist on Diabetes Team

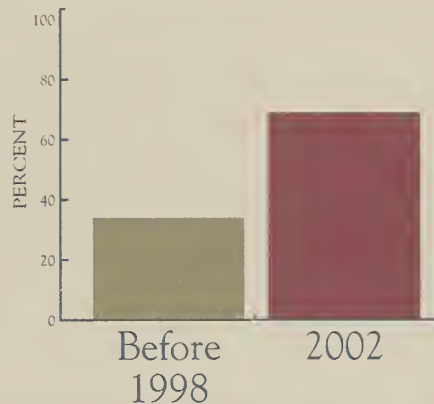
Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



Diabetes grant programs used funding to increase the numbers of Registered Dietitians (RDs) and Public Health Nutritionists (PHNs) on their diabetes teams. In 2002, 72% of the diabetes grant programs reported the addition of RDs or PHNs to their diabetes teams as compared with 30% before the SDPI.

Availability of Medical Nutrition Therapy Services for Persons with Diabetes and/or at Risk for Diabetes

Before 1998 vs 2002, $p < 0.0001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002



Diabetes grant programs used funding to increase Medical Nutrition Therapy (MNT) services for people with diabetes or at-risk for diabetes. In 2002, 68% of the diabetes grant programs reported the availability of MNT services for people with diabetes or at-risk for diabetes as compared with 36% before the SDPI.

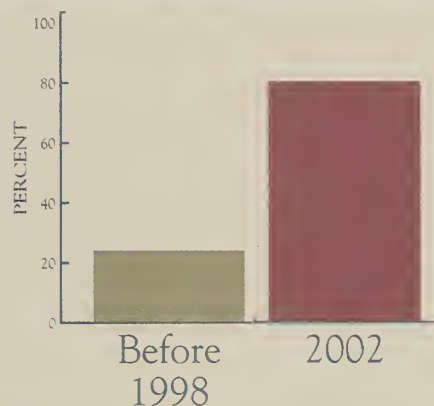
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Availability of Nutrition Activities/Classes for Family Members of People with Diabetes

Before 1998 vs 2002, $p < 0.0001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002



Diabetes grant programs used funding to increase the availability of nutrition activities and classes for family members of people with diabetes. In 2002, 80% of the diabetes grant programs reported that they had developed nutrition activities or classes for family members of people with diabetes as compared with 24% before the SDPI.

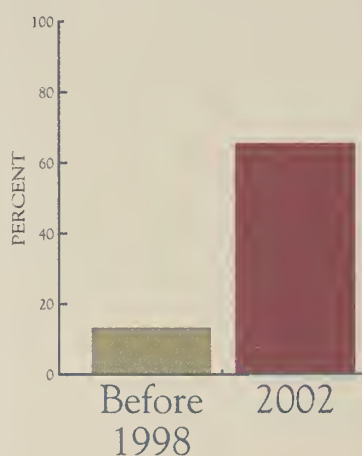
Tribal leaders and tribal members partnership to develop diabetes-related activities increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Tribes play a unique role in the delivery of health services in AI/AN communities. Health care systems that incorporate input from all tribal members—including tribal leaders, community members, and health care workers—are often the best suited for addressing the unique needs of AI/AN communities.²⁰ In addition, health care systems designed with input from the local tribal community build community capacity, have a strong participant base, and incorporate tribal involvement in defining and resolving needs.²¹

Partnership of Tribal Leaders and Tribal Members to Develop Diabetes-Related Activities



Before 1998 vs 2002, $p < 0.0001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

Involvement of tribal leaders and tribal health directors in diabetes-related issues ensures that local tribal priorities are incorporated into diabetes planning. In 2002, 65% of the diabetes grant programs reported increased participation of tribal leaders and tribal health directors in the planning and implementation of diabetes activities through community advisory boards, tribal councils, and tribal forums as compared with 14% before the SDPI.

Local community partnerships increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Partnerships and collaborations strengthen the public health infrastructure for addressing diabetes in AI/AN communities. Through the Special Diabetes Program for Indians, AI/AN communities have enhanced the already extensive Indian health system diabetes network by collaborating with local community organizations, such as tribal programs, social service programs, and cultural and religious organizations.

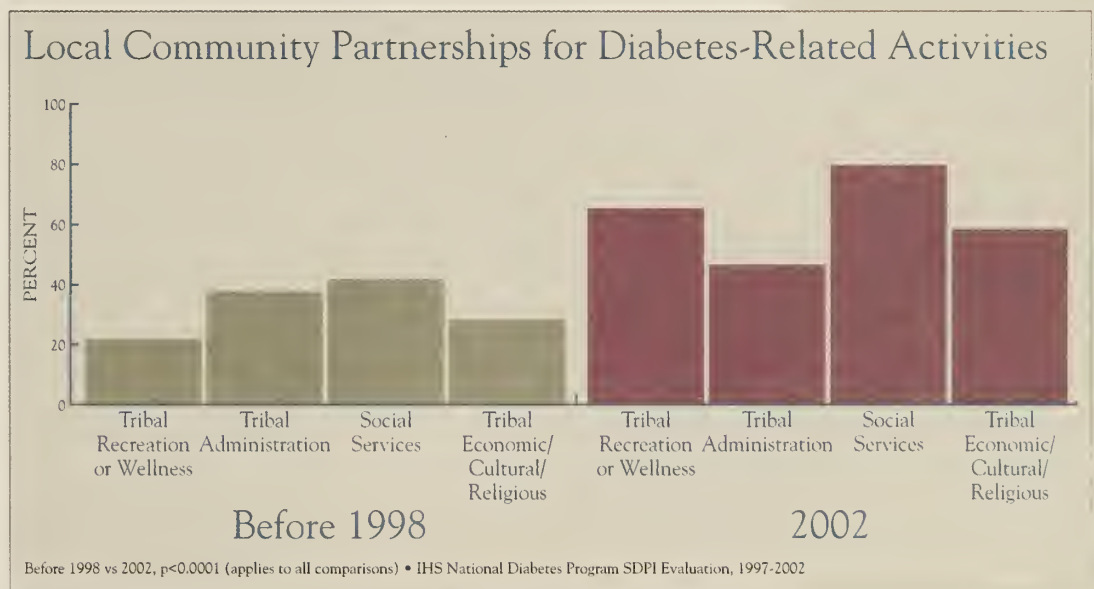
Collaboration with local community partners has strengthened the local public health infrastructure to ensure the success of the SDPI. For example, in 2002:

- 66% of the diabetes grant programs collaborated with local tribal recreation or wellness programs as compared with 24% before the SDPI.
- 49% of the diabetes grant communities worked with local tribal health boards, tribal councils, and other tribal administrative entities on diabetes-related activities as compared with 38% before the SDPI.
- 80% of the diabetes grant programs worked with social services programs, such as drug and alcohol programs, elder outreach, and child care services, as compared with 45% before the SDPI.
- 59% of the diabetes grant programs worked with tribal economic, cultural, and religious programs and organizations as compared with 29% before the SDPI.

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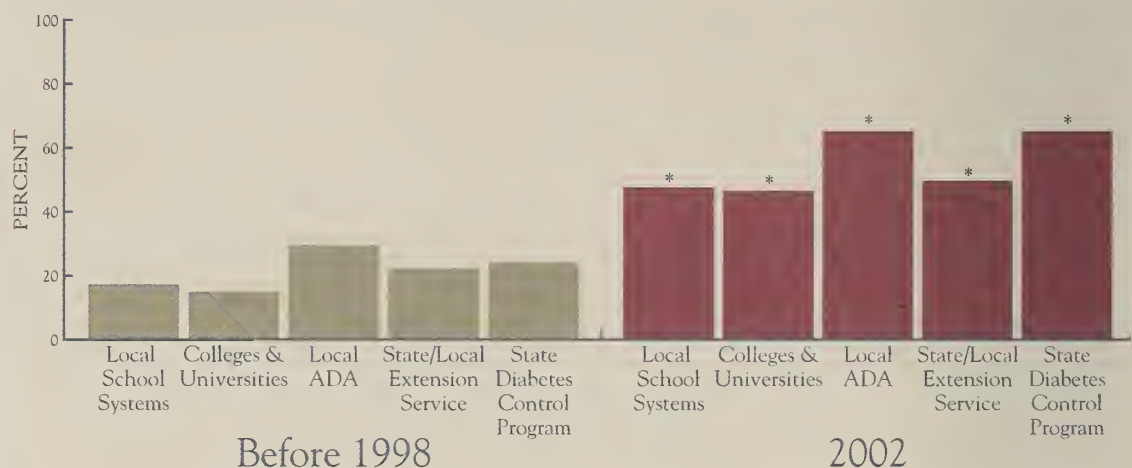
Partnerships with outside organizations increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Partnerships and collaborations strengthen the public health infrastructure for addressing diabetes in AI/AN communities. Through collaboration with outside partner organizations such as state diabetes programs, colleges and universities, and advocacy organizations like the American Diabetes Association and Juvenile Diabetes Research Foundation, AI/AN communities have enhanced the already extensive Indian health system diabetes network.

Partnerships with Outside Organizations



*Before 1998 vs 2002, $p < 0.0001$ • IHS National Diabetes Program SDPI Evaluation, 1997-2002

Collaboration and partnerships have strengthened the public health infrastructure to ensure the success of the SDPI. For example, in 2002:

- 49% of the diabetes grant programs collaborated with local school systems on diabetes-related activities as compared with 17% before the SDPI.
- 48% of the diabetes grant programs worked with colleges or universities as compared with 16% before the SDPI.
- 66% of the diabetes grant programs collaborated with local American Diabetes Association affiliates as compared with 29% before the SDPI.
- 52% of the diabetes grant programs worked with state and local cooperative extensions as compared with 22% before the SDPI.
- 66% of the diabetes grant programs worked with state diabetes programs as compared with 23% before the SDPI.

Policies addressing diabetes prevention and care have increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Funding from the Special Diabetes Program for Indians provided AI/AN communities with the opportunity to design diabetes prevention and treatment efforts and health care systems that best meet their needs. The diabetes grant programs have developed plans with community input to promote primary prevention of diabetes and optimal diabetes care. This is an important principle found in the health promotion literature.²²

Policy and Organizational Changes in SDPI Communities Related to Diabetes



* Before 1998 vs 2002, $p < 0.0001$ • IHS National Diabetes Program SDPI Evaluation, 1997-2002

POLICY AND ORGANIZATIONS CHANGES: New policies related to school food service, tribal worksite wellness, and tribal administrative diabetes prevention and care policies have increased with the implementation of the SDPI. In 2002:

- 32% of the diabetes grant programs reported changes in policies related to school food services, including guidance on healthy food choices in vending machines and cafeteria services, as compared with 6% before the SDPI.
- 43% of the diabetes grant programs reported changes in worksite wellness policies related to tribal staff, such as a policies encouraging physical activity during the work day, as compared with 13% before the SDPI.
- 35% of the diabetes grant programs reported changes in tribal administrative policies on diabetes prevention and care activities as compared with 6% before the SDPI.

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The Port Gamble S'Klallam Tribe is one of many to implement a policy allowing paid breaks for physical, mental, and spiritual health.

Availability of organized diabetes education programs and support services in clinics and communities increased with implementation of the Special Diabetes Program for Indians.

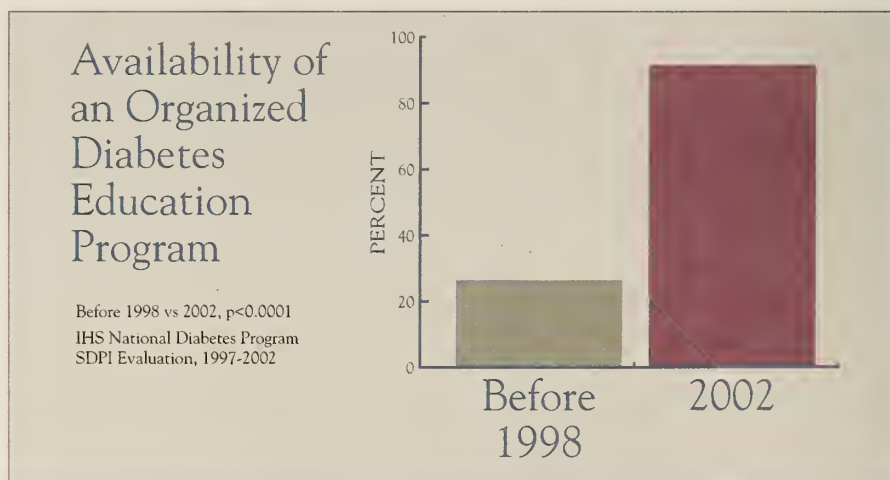
Comparison: Before 1998 vs 2002

Why is this important?

Diabetes self-management education is a cornerstone of effective diabetes care. The availability of individual and group diabetes education classes, especially those that employ support groups and behavioral interventions, provides an opportunity for people with diabetes and their families to access diabetes self-management education.²³



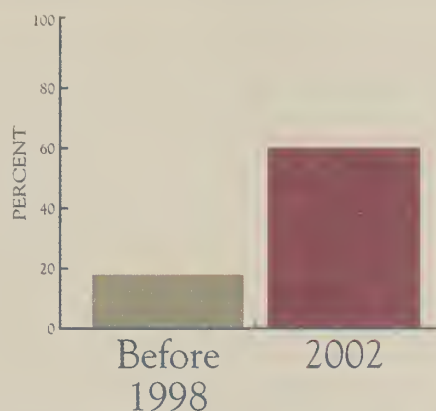
Yvonne Stovall (Pima, Maricopa, Ute) and Janelle Blaine (Pima/Tohono O'odham) say support from clinic staff helped them keep attending diabetes prevention meetings. "The staff always tried to find ways to motivate me, but were never pushy," says Yvonne. "The staff were always there. They always listened. They made me feel like I was not alone," says Janelle.



In 2002, 90% of the diabetes grant programs reported having an organized diabetes education program in a clinic or community setting as compared with 27% before the SDPI.

Availability of a Diabetes Support Group

Before 1998 vs 2002, $p < 0.0001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002



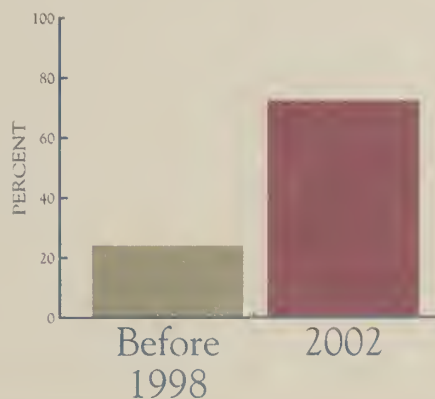
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Availability of Community Behavioral Health Program Services to People with Diabetes

Before 1998 vs 2002, $p < 0.0001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002



The availability of behavioral interventions, such as classes or individual counseling on stress management, coping skills, biofeedback, and self-esteem, contributes to diabetes care. In 2002, 72% of the diabetes grant programs reported that community behavior health programs were available in their communities as compared with 24% before the SDPI.

Availability of culturally appropriate diabetes education increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Culture is a key determinant of behavior that cannot be separated from health and that may have a profound effect on the way an individual defines and experiences health and disease. Because culture and health are intertwined and inseparable concepts, it is important to integrate culture and health messages in order to have interventions that may be more acceptable, better understood, and more effective. Most interventions have been developed for the general population and are often not culturally suitable for minority populations.

Content and style of the interventions must incorporate:

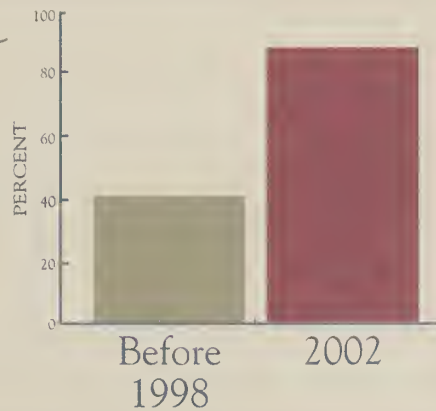
- Videos, pictures, and artwork that include faces of AI/AN individuals to reflect both culture and community needs.²⁴
- Traditional AI/AN storytelling that conveys information about diabetes, traditional foods and physical activities.
- Videos featuring AI/AN individuals engaging in healthy behaviors, making interactive materials culturally relevant with values pertinent to AI/AN communities.²⁵

"Dancing my Native dance keeps me physically and spiritually healthy. There is diabetes in my family. I think being physically fit and being at peace is the key to preventing diabetes."

Florentino Barril, (Tlingit)



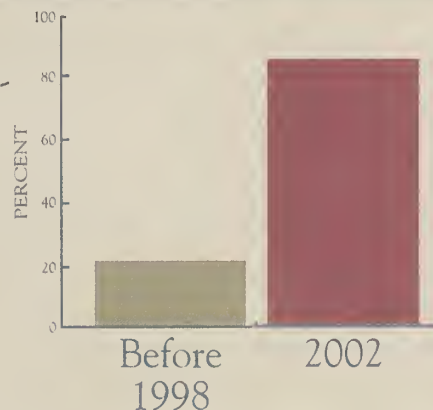
Availability of Culturally-Appropriate Diabetes Educational Materials



Before 1998 vs 2002, $p < 0.03$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

In 2002, 85% of the diabetes grant programs reported having access to culturally appropriate diabetes education materials as compared with 43% before the SDPI.

Availability of a Budget for Purchasing Culturally-Appropriate Diabetes Educational Materials



Before 1998 vs 2002, $p < 0.03$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

Access to culturally appropriate diabetes educational materials is important. In 2002, 87% of the diabetes grant programs reported having a budget to purchase culturally appropriate education materials as compared with 22% before the SDPI.

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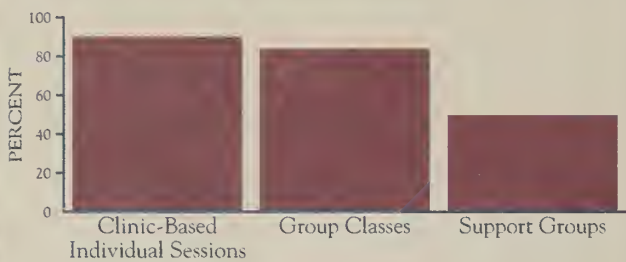
Short-Term Outcomes

A variety of methods for diabetes education were provided with implementation of the Special Diabetes Program for Indians.

Why is this important?

Individuals have preferred styles of learning, such as reading, listening, or participating in discussions. The availability of different styles of learning and individual education and literacy levels affect an individual's willingness to participate in and learn from an education program.

Settings Used for Diabetes Education

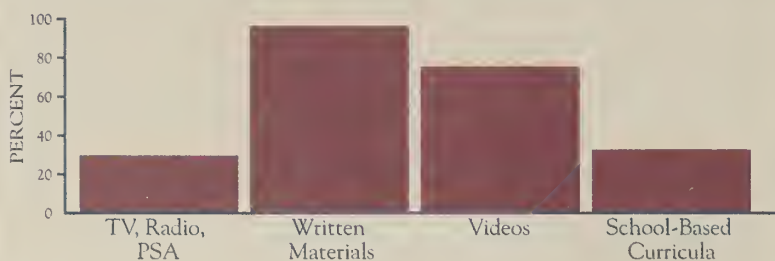


IHS National Diabetes Program SDPI Evaluation, 2002

In 2002, the diabetes grant programs reported that they provided:

- Clinic-based individual sessions (90%).
- Group classes (84%).
- Support groups (50%).

Types of Diabetes Education Materials Used

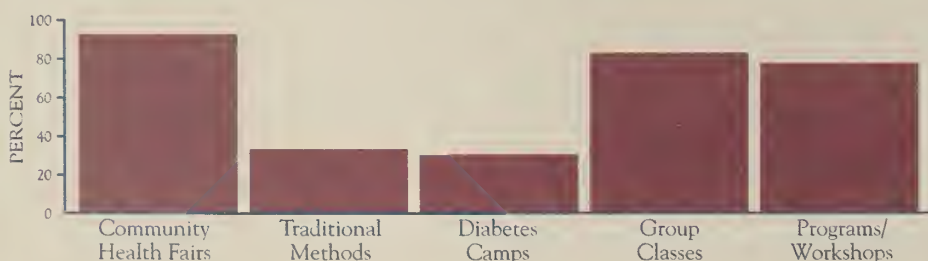


IHS National Diabetes Program SDPI Evaluation, 2002

In 2002, the diabetes grant programs reported that they provided diabetes education through the use of:

- TV, radio, and public service announcements (29%).
- Written materials (96%).
- Videos (77%).
- School-based curricula (35%).

Community-Based Diabetes Education Efforts



IHS National Diabetes Program SDPI Evaluation, 2002

In 2002, the diabetes grant programs reported that they used the following methods to provide diabetes education in AI/AN communities:

- Community health fairs (93%).
- Traditional methods, such as stories and talking circles (33%).
- Diabetes camps (27%).
- Group classes, such as fitness, cooking, and stress management classes (81%).
- Programs and workshops held in homes, cultural centers, alcohol programs, and elderly centers (76%).

Availability of continuing education opportunities for health care providers increased with implementation of the Special Diabetes Program for Indians.

Why is this important?

To provide quality diabetes care and education services, health care providers and educators must be competent and knowledgeable.

- For current credentialing, health care providers must fulfill continuing education requirements.
- The American Association of Diabetes Educators' Standards of Practice for Diabetes Educators encourage diabetes educators to pursue continuing education to acquire current knowledge and skills.
- The American Diabetes Association's National Standards for Diabetes Self-Management Education require providers to obtain continuing education in diabetes management, behavioral interventions, teaching and learning skills, and counseling skills.

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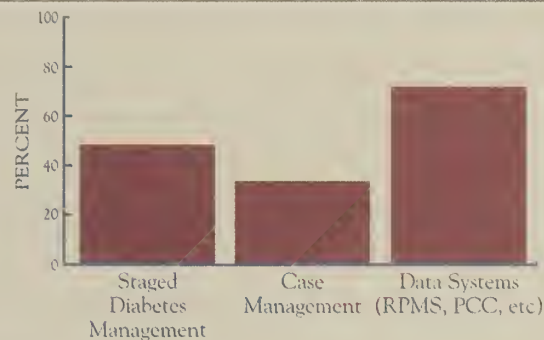
Short-Term Outcomes

In 2002, the diabetes grant programs reported that they obtained diabetes-related continuing education programs for health professionals:

- 47% of the diabetes grant programs provided Staged Diabetes Management education
- 35% provided case management education
- 71% provided education on data systems, such as RPMS and PCC

Types of Education Provided to Health Professionals

IHS National Diabetes Program
SDPI Evaluation, 1997-2002



To provide quality diabetes care, health professionals need access to diabetes-related continuing education. In 2002, 86% of the diabetes grant programs reported that their health professionals were able to access diabetes-related continuing education programs as compared with 34% before the SDPI. In 2002, 83% of the diabetes grant programs reported that their paraprofessionals were able to access diabetes-related continuing education programs as compared with 24% before the SDPI.

Availability of Diabetes-Related Continuing Education Programs

Before 1998 vs 2002, $p=0.0009$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



A variety of traditional approaches were implemented through the Special Diabetes Program for Indians.

Why is this important?

Traditions are key to a healthier community.

STORYTELLING: Storytelling is a powerful tool in conveying positive messages about diabetes prevention and treatment.²⁶

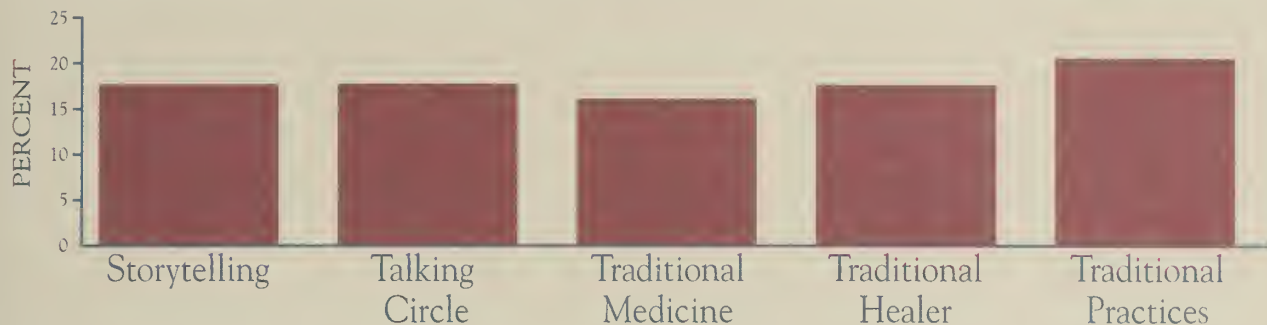
TALKING CIRCLES: Most Tribes have a strong oral tradition, often sharing stories of tribal history, ceremony, and culture in group settings. Talking circles, groups in which tribal members sit in a large circle to discuss community concerns, remain an important part of many AI/AN communities today. A study funded by the National Institutes of Health among Aberdeen Area tribes found that people who participated in talking circles were less likely to have a fatalistic attitude toward diabetes. These individuals were also more likely to have general knowledge of the disease and were healthier individuals.²⁷

TRADITIONAL PRACTICES: Traditional practices describe the healing practices and beliefs of AI/AN communities. True traditional practice is a profound system that is far more deeply rooted and complex than is generally understood. The most important characteristic of traditional practice is the use of religion and spirituality.²⁸

TRADITIONAL HEALERS AND TRADITIONAL

MEDICINE: A traditional healer is an AI/AN individual whom the community considers to possess supernatural powers that support and are supported by the common values of the healer's culture. The traditional healer usually undergoes many years of study and apprenticeship, as well as adheres to personal conduct guidelines. Traditional medicines may include plants, herbs, pollens, physiatry, heat, cupping, and other remedies.²⁹

Traditional and Cultural Approaches Targeted at the Whole Community



IHS National Diabetes Program SDPI Evaluation, 2002

In 2002:

- **Storytelling:** 17% of the diabetes grant programs reported using funds to establish traditional storytelling activities in their communities.
- **Talking circles:** 17% of the diabetes grant programs reported that they established talking circles for their communities.
- **Traditional medicine:** 16% of the diabetes grant programs reported that they used traditional medicines in diabetes-related activities for their communities.
- **Traditional healers:** 17% of the diabetes grant programs reported that they established relationships with traditional healers for their communities.
- **Traditional practices:** 21% of the diabetes grant programs reported that they incorporated traditional practices into diabetes-related activities for their communities.

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"There is a story of an orange caterpillar who finds out it has diabetes. It changes to a brown caterpillar because it feels so bad with diabetes. But, by taking care of itself, it can change into a butterfly, a silver butterfly."

Anthony Gutierrez (Sandia Pueblo)



Talking Circle Helps American Indians Talk About Diabetes

There's a lot of power in a name. When the Sonoma County Health Project offered a Diabetes Class to American Indians living near Santa Rosa, California, hardly anyone came. With the help of Lucy McKay a Miwok-Pomo traditional dancer and healer, and naming the class "Wellness Circle," the weekly meeting now attracts a roomfull of people.

Lucy had the idea of bringing traditional methods to American Indians with diabetes

while she was leading a talking circle for children. The children were seated in a circle. They passed a buckskin bag containing angelica root in a counterclockwise direction. Whoever held the bag would speak fully, from their heart.

The children were American Indian. They understood the rule of allowing each person to speak from their heart for as long as they needed. They respected the rule that whatever was said in the circle would

Traditional talking circles were one of the many ways tribes provided culturally-appropriate methods to help American Indians prevent and manage diabetes.



remain in the circle. The children, usually reticent in group discussions, shared openly. Lucy had a hunch that what worked for American Indian children would work for American Indian adults with diabetes.

So Lucy held the first adult talking circle at the Sonoma clinic. Instead of a buckskin bag, circle participants passed a small stuffed bear from person to person. They talked about whatever was on their minds. A lot of times they talked about having diabetes; a lot of times they just talked.

"There were lots of tears in the first circles," recalled Lucy.

"Don't worry. Crying is okay. Tears are good healing," she told participants. "Let the circle take you in the direction you need to go."

When the circle concludes, clinic staff give participants information on diabetes, such as new herbal treatments that help lower blood sugar, or share a low-fat recipe. But, the talking circle is always the first activity of the hour-long meeting. It breaks the ice. It paves the way to openness. It instills a sense of peace.

Says Shirley Milligan, a Pomo elder, "In the wellness circle, we all talk. And having diabetes becomes easier for me."

"They talked about whatever was on their minds. A lot of times they talked about having diabetes, a lot of times they just talked."

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"Living a traditional life helps. At first, I doubted our traditions. Then, I started believing. I believe in healing."

Lucy McKay (Miwok-Pomo)



*Many diabetes **primary prevention activities** were established with implementation of the Special Diabetes Program for Indians.*

Why is this important?

Since the inception of the Special Diabetes Program for Indians in 1998, tribal leadership and AI/AN communities recognized the importance of focusing on diabetes primary prevention activities. Physical inactivity and unhealthy eating are known risk factors that contribute to the development of chronic diseases, such as diabetes and cardiovascular disease. Recent scientific evidence demonstrated that type 2 diabetes can be prevented by lifestyle modifications in both men and women, young and old, and in diverse populations, including AI/ANs.³⁰



Many tribes chose to offer diabetes prevention programs. Several Southwest tribes participated in a study called the Diabetes Prevention Program which concluded that diabetes can be prevented or delayed through changes in exercise, diet and/or taking diabetes medicine.



The Nambe Pueblo in New Mexico offers karate classes as a diabetes prevention activity to tribal members ages four through adults. The program is very popular, attracting nearly 30 people from this small community of about 300. Every month, the number of people who are in the karate program increases. Diabetes staff attribute its popularity to its focus on fitness and fun. Having the karate class located at the pueblo's Wellness Center makes it easy for entire families to attend, and is another major reason for its success.

Prior to the SDPI, AI/AN communities had few resources to devote to diabetes primary prevention activities. In 2002, an overwhelming number of diabetes grant programs (96%) reported that they now used funds to support diabetes primary prevention activities in their communities.

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Program Activities: Promoting Lifestyle Modifications

IHS National Diabetes Program
SDPI Evaluation, 2002



In 2002:

- 91% of the diabetes grant programs reported that they developed activities that promoted health behavior change.
- 86% reported that they developed nutrition activities.
- 78% reported that they developed physical activity programs.

Community physical fitness activities increased with implementation of the Special Diabetes Program for Indians.

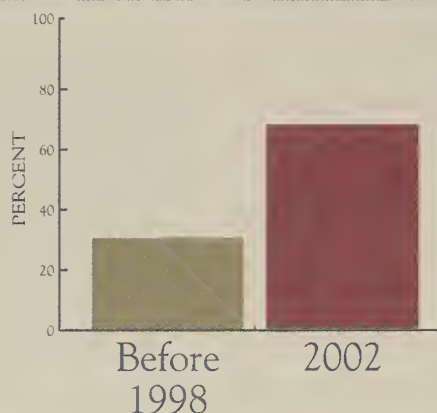
Comparison: Before 1998 vs 2002

Why is this important?

Exercise is a cornerstone in the treatment of type 2 diabetes. Regular exercise and physical fitness promote weight loss, improve insulin sensitivity, increase muscle strength, reduce stress, enhance self-esteem, and improve the overall quality of life. People of all ages benefit from moderate physical activity.³¹

Availability of Recreation/Wellness/Fitness Facilities

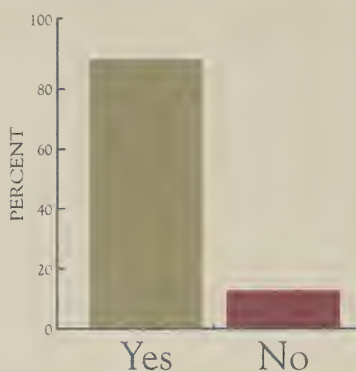
Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



Diabetes grant programs used funding to develop or enhance recreation, wellness, or fitness facilities. In 2002, 69% of the programs reported the availability of recreation, wellness, or fitness facilities, compared with 31% before the SDPI.

Grant Programs that Reported They Used Grant Funding to Support Fitness/Physical Activities Targeting the Whole Community

IHS National Diabetes Program SDPI Evaluation, 2002



The diabetes grant programs used funding to develop physical fitness activities targeted toward the whole community. In 2002, 87% of the diabetes grant programs reported the addition of physical fitness activities targeted to the whole community.

"When I first started working out, they put me on a bike, and I cried! But, they stayed on me! Now, I exercise four times a week. Exercise is the best!"

Cornelia Bowannie (Zuni Pueblo)

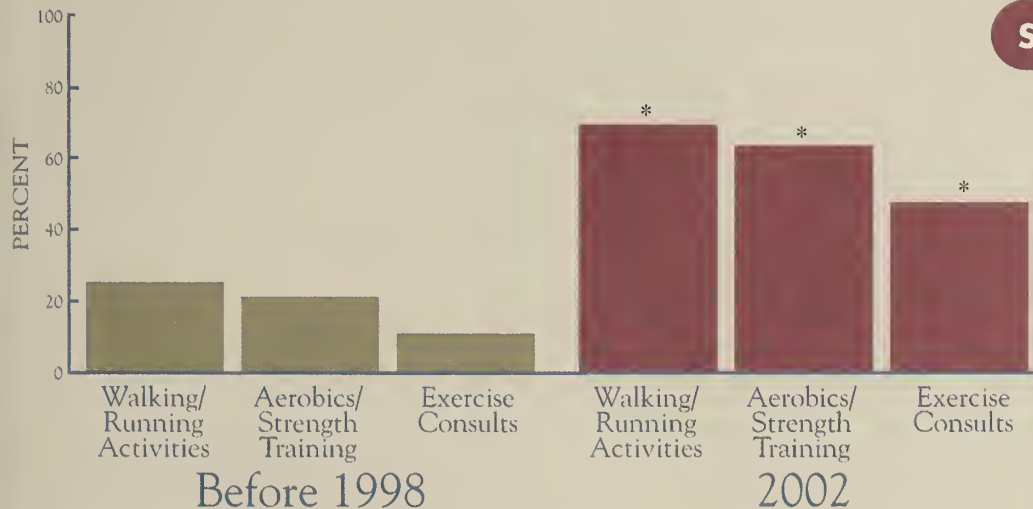


To appeal to the interests of all community members, the diabetes grant programs used a variety of approaches to increase physical activity within AI/AN communities.

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Availability of Fitness Classes/Activities Targeted at Your Whole Community



*Before 1998 vs 2002, $p < 0.001$ (applies to all three activities) • IHS National Diabetes Program SDPI Evaluation, 1997-2002

Short-Term Outcomes

Diabetes grant programs used funding to develop a variety of physical fitness classes and activities targeted toward the whole community.

- In 2002, 70% of the diabetes grant programs reported the availability of walking and running clubs as compared with 25% before the SDPI.
- In 2002, 64% of the diabetes grant programs offered fitness activities such as aerobics, stretching, and strength training, as compared with 21% before the SDPI.
- In 2002, 47% of the diabetes grant programs offered individual exercise consultations to their community members as compared with 11% before the SDPI.

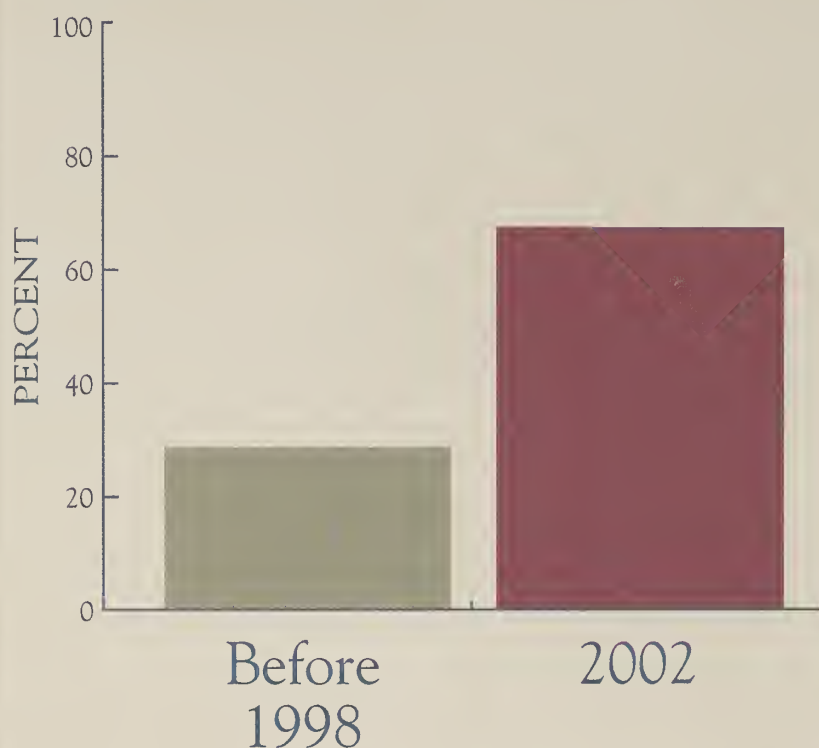
Availability of community nutrition services increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Overweight individuals can lower their blood pressure, lower their blood glucose levels, and improve lipid levels by losing as little as 5–15% of their body weight. Blending traditional and local nutrition and fitness activities can help families and communities make the lifestyle changes needed to lose weight.³²

Availability of Weight Management Programs for Adults



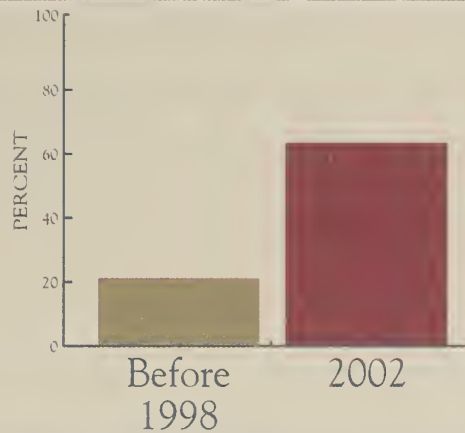
Before 1998 vs 2002 • IHS National Diabetes Program SDPI Evaluation, 1997-2002

The diabetes grant programs used funding to establish adult weight management programs. In 2002, 66% of the diabetes grant programs reported that they had developed an adult weight management program as compared with 28% before the SDPI.

The Blackfeet tribe in Montana provided a program to women called "Strong Women Stay Slim" which included nutrition education and fitness training.

Availability of Traditional Approaches to Food and Nutrition

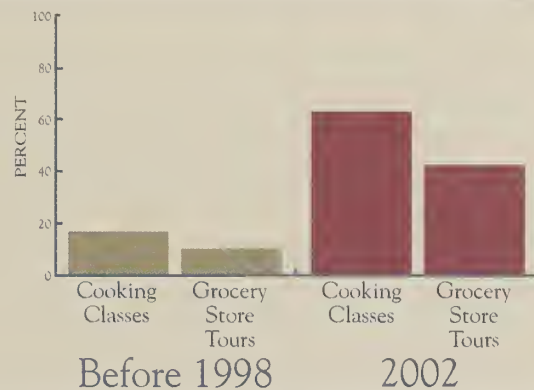
Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



The diabetes grant programs used funding to develop traditional food and nutrition activities. In 2002, 63% of the diabetes grant programs reported that they had developed traditional food and nutrition activities as compared with 22% before the SDPI.

Availability of Cooking Classes and Grocery Store Tours for People with Diabetes

Before 1998 vs 2002,
 $p < 0.0001$ cooking classes,
 $p < 0.0001$ grocery store tours
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



Diabetes grant programs used funding to increase nutrition services, such as cooking classes and grocery store tours. In 2002, 63% of the diabetes grant programs reported the availability of cooking classes for people with diabetes as compared with 19% before the SDPI. In addition, 41% of the diabetes grant programs reported the availability of grocery store tours for people with diabetes as compared with 11% before the SDPI.

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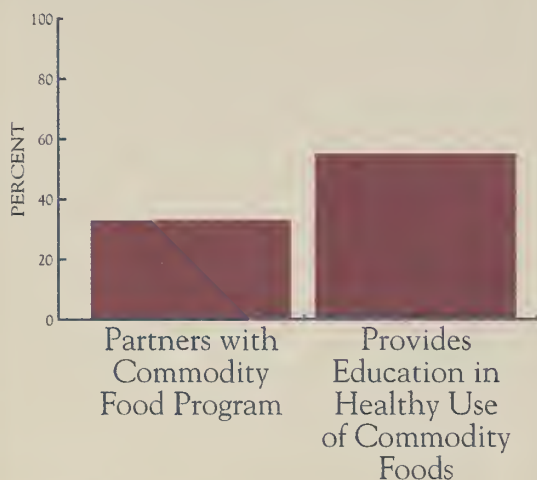


Programs collaborated with the U.S. Department of Agriculture to improve nutrition in AI/AN communities with implementation of the Special Diabetes Program for Indians.

Why is this important?

Programs, such as the U.S. Department of Agriculture's (USDA) Food and Nutrition Services (FNS) Programs and Food Distribution Program for Indians (FDPIR), use grassroots efforts to encourage communities to eat a healthy diet. These grassroots efforts make healthy foods more available locally, encourage people to eat these healthy foods, and promote changes in local nutrition policies. All of these efforts combine to help communities make positive changes that lead to healthy eating behaviors.³³

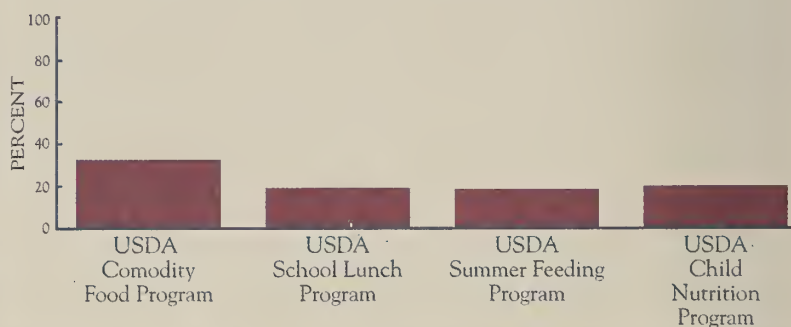
Collaboration with the USDA Food Distribution Program for Indians



IHS National Diabetes Program
SDPI Evaluation, 2002

The diabetes grant programs worked with their community's USDA FDPIR to enhance nutrition services for people with diabetes and at-risk for diabetes. In 2002, 33% of the diabetes grant programs reported that they worked with the USDA FDPIR, and 55% reported that they provided education in the healthy use of commodity foods.

Grant Programs Worked with Specific USDA Food & Nutrition Programs



IHS National Diabetes Program SDPI Evaluation, 2002

The diabetes grant programs worked with their community's USDA FNS to enhance services for people with diabetes and those at-risk for diabetes. In 2002:

- 33% worked with the USDA Commodity Food Program.
- 19% worked with the USDA School Lunch Program.
- 19% worked with the USDA Summer Feeding Program.
- 20% of the diabetes grant programs reported that they had worked with their USDA Child Nutrition Programs.

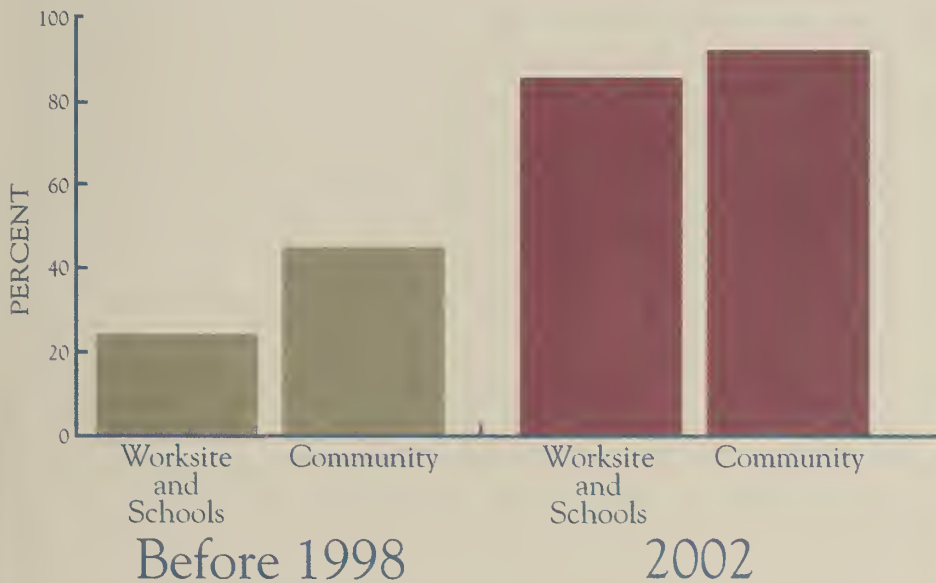
Diabetes awareness activities increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Activities that increase diabetes knowledge and awareness help to promote early recognition and prompt treatment of diabetes and pre-diabetes. These activities, in combination with lifestyle changes, can dramatically reduce the burden of diabetes and its complications.³⁴

Grant Programs Reported They Used Grant Funds to Support Diabetes Awareness Activities



Before 1998 vs 2002 • IHS National Diabetes Program SDPI Evaluation, 1997-2002

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The diabetes grant programs used funds to support activities that aimed to increase diabetes knowledge and raise diabetes awareness. In 2002:

- 85% of the diabetes grant programs reported that they established diabetes awareness activities in worksites and schools as compared with 24% before the SDPI.
- 92% established diabetes awareness activities in the community as compared with 45% before the SDPI.

Diabetes primary prevention programs for children and youth increased with implementation of the Special Diabetes Program for Diabetes.

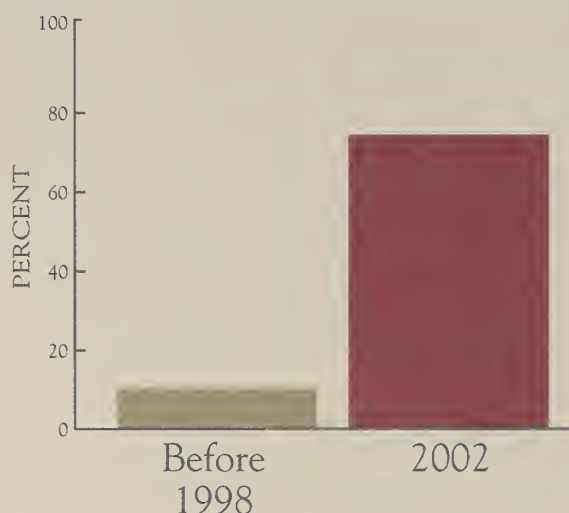
Comparison: Before 1998 vs 2002

Why is this important?

Diabetes primary prevention programs for children and youth facilitate healthy lifestyle development and lifestyle change to prevent the onset of diabetes and other chronic diseases.³⁵ Diabetes prevention programs for children and youth can include:

- Screening for overweight and obesity.
- Healthy eating programs.
- Physical activity programs.
- Breastfeeding programs.

Diabetes Primary Prevention Programs for Children and Youth



Before 1998 vs 2002, $p=0.012$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

AI/AN communities have identified primary prevention of diabetes as a priority. Diabetes grant programs used funding to increase the availability of diabetes primary prevention programs for children and youth, including breastfeeding programs, healthy eating, physical activity, and screening programs. In 2002, 73% of the diabetes grant programs reported the availability of diabetes primary prevention programs for children and youth as compared with 10% before the SDPI.

Community-based healthy eating programs for children, youth and families increased with implementation of the Special Diabetes Program for Indians.

Comparison: 2001 to 2002

Why is this important?

Communities need community- and school-based interventions to encourage lifelong healthy eating and regular physical activity to prevent the onset of diabetes and/or prevent the complications of diabetes.³⁶

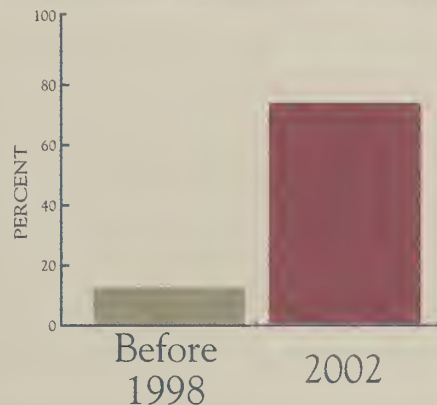
CHAPTER FOUR

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Availability of
Community-Based
Healthy Eating
Programs for
Children, Youth
& Families

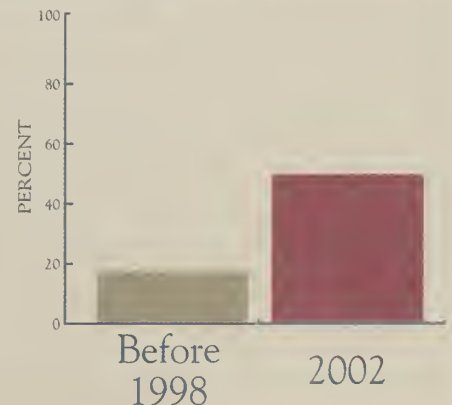
Before 1998 vs 2002, $p=0.001$
IHS National Diabetes
Program SDPI Evaluation, 1997-2002



The diabetes grant programs used funding to establish community-based healthy eating programs for children, youth, and families. In 2002, 75% of the diabetes grant programs reported the availability of such programs as compared with 13% before the SDPI.

Availability of
School-Based
Healthy Eating
Programs for
Children

Before 1998 vs 2002, $p=0.012$
IHS National Diabetes
Program SDPI Evaluation, 1997-2002



The diabetes grant programs used funding to establish school-based healthy eating programs for children. In 2002, 50% of the diabetes grant programs reported the availability of such programs for children as compared with 18% before the SDPI.

Screening and management of overweight and obesity among children and youth increased with implementation of the Special Diabetes Program for Indians.

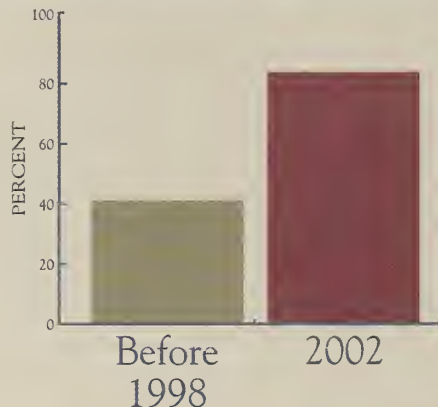
Comparison: Before 1998 vs 2002

Why is this important?

Overweight and obesity among children and youth increases the risk of developing diabetes and other medical conditions, including cardiovascular disease and asthma. Several studies have documented an alarming increase in the prevalence of overweight, obesity, and diabetes among children worldwide.³⁷ Until the Special Diabetes Program for Indians, many AI/AN communities lacked the capability to screen for overweight and obesity in AI/AN children and youth.

Screening for Overweight and Obesity in Children and Youth

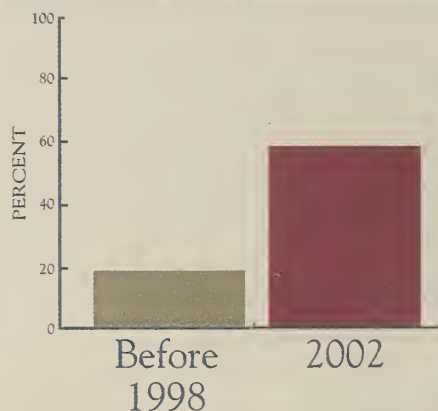
Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



The diabetes grant programs used funding to screen children and youth for overweight and obesity. In 2002, 83% of the diabetes grant programs reported screening for overweight and obesity as compared with 41% before the SDPI.

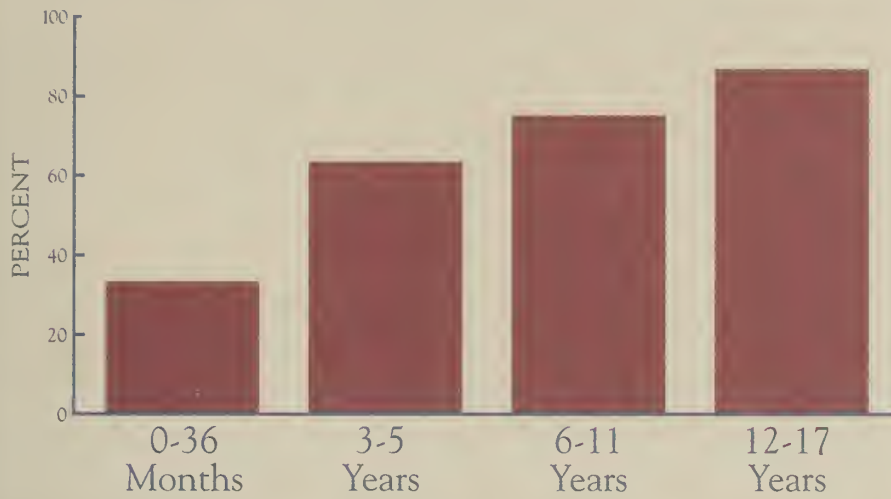
Availability of Weight Management Programs for Children and Youth

Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program
SDPI Evaluation, 1997-2002



The diabetes programs used funding to establish weight management programs for children and youth. In 2002, 60% of the diabetes grant programs reported the availability of weight management programs as compared with 18% before the SDPI.

Age Groups Screened for Overweight and Obesity



IHS National Diabetes Program SDPI Evaluation, 2002

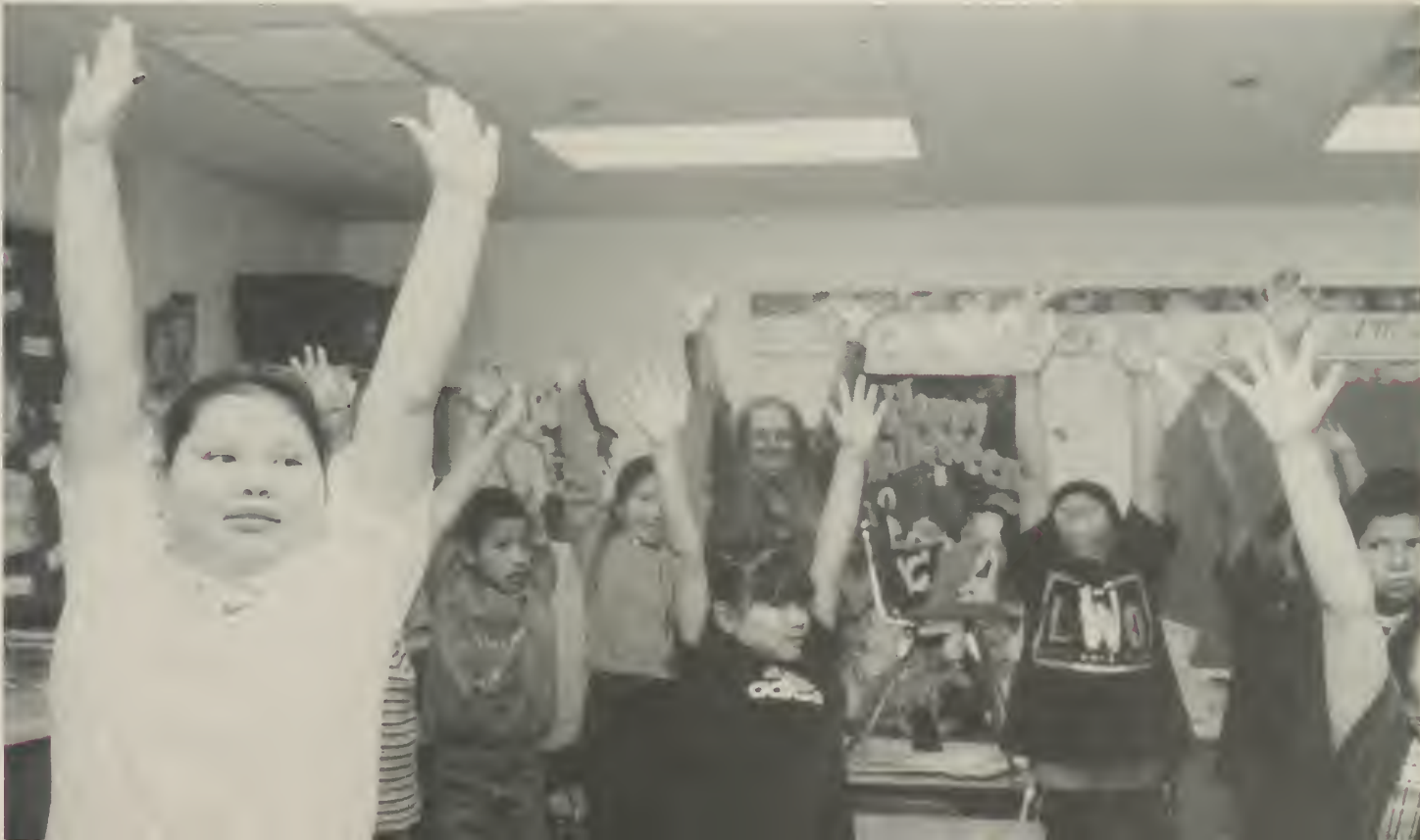
The diabetes grant programs included all youth age groups in their screening programs to maximize the opportunity for early intervention. The majority of the screening efforts focused on children (aged 6-11 years) and adolescents (aged 12-17 years).

CHAPTER FOUR

Outcomes

The Yankton Sioux Tribe in Wagner, South Dakota screened students in first through third grades for diabetes.

Short-Term Outcomes



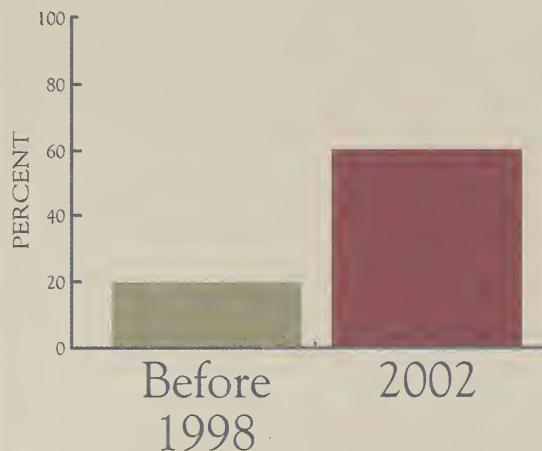
Nutrition education services for children and youth increased with implementation of the Special Diabetes Program for Indians.

Comparison: Before 1998 vs 2002

Why is this important?

Providing nutrition information to families and teachers is important for promoting healthy eating in children and youth to prevent the onset of diabetes.

Availability of Nutrition Activities for Parents & Families of School Age Children

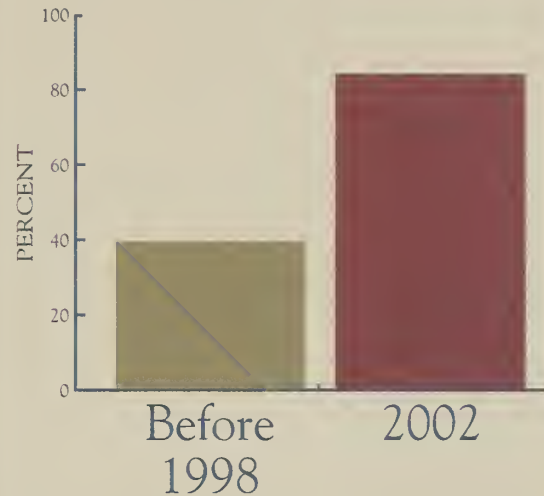


Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

The diabetes grant programs used funding to establish nutrition activities for parents and families of school age children. In 2002, 60% of the diabetes grant programs reported the availability of nutrition activities for parents and families of school age children as compared with 20% before the SDPI.

The diabetes grant programs used funding to enhance nutrition education services for children and youth. In 2002, 83% of the diabetes grant programs reported the availability of nutrition education services for children and youth as compared with 39% before the SDPI.

Availability of Nutrition Education Services for Children & Youth



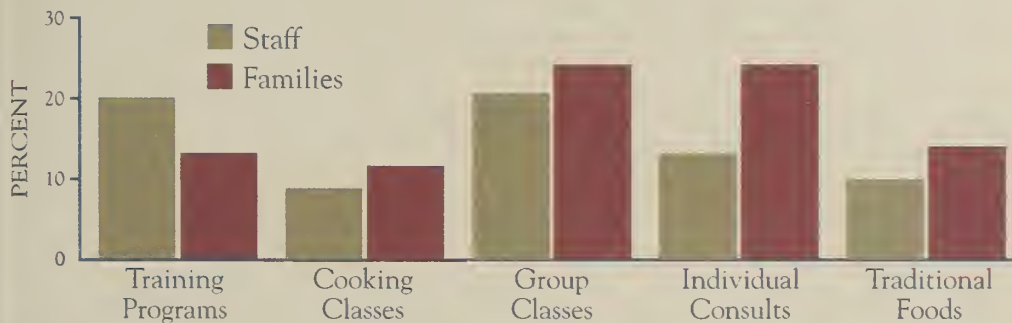
Before 1998 vs 2002, $p < 0.001$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

CHAPTER FOUR

Outcomes

Methods to Provide Nutrition Information to Head Start/ Early Childhood Staff & Families

Short-Term Outcomes



IHS National Diabetes Program SDPI Evaluation, 2002

The diabetes grant programs used funding to provide nutrition information to Head Start and Early Childhood staff, as well as to families. The diabetes grant programs used the following methods to provide nutrition information in 2002:

- Training programs (20% provided nutrition information to Head Start and Early Childhood staff; 13% provided nutrition information to families)
- Cooking classes (9% to Head Start and Early Childhood staff; 11% to families)
- Group classes (21% to Head Start and Early Childhood staff; 24% to families)
- Individual consults (13% to Head Start and Early Childhood staff; 21% to families)
- Traditional food classes (10% to Head Start and Early Childhood staff; 14% to families)

Physical activity programs for children and youth increased significantly with implementation of the Special Diabetes Program for Indians.

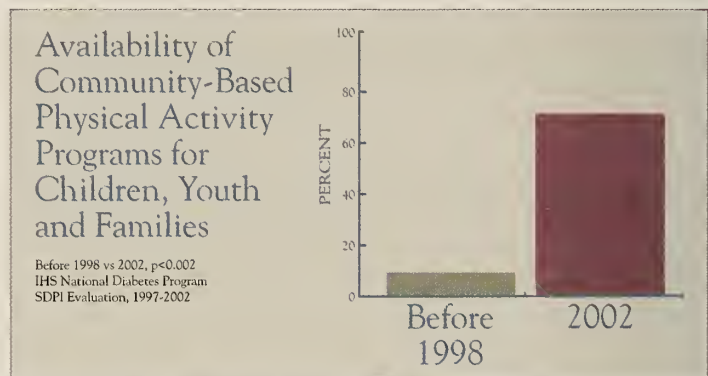
Comparison: 1998 vs 2002

Why is this important?

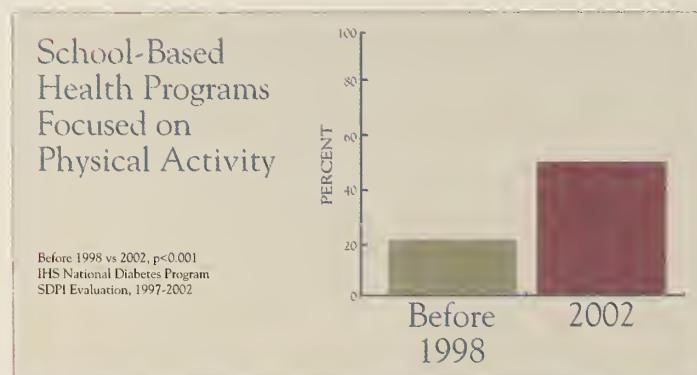
Physical activity is important to help prevent or delay the onset of diabetes. The American Diabetes Association recommends regular, daily physical activity for children and youth to maintain a healthy lifestyle.³⁸



The Toos Pueblo in New Mexico offered athletic programs to youth including soccer and rock climbing.

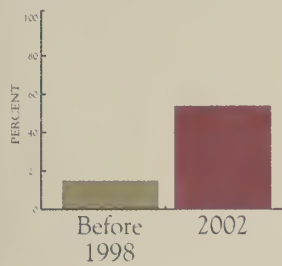


In 2002, 71% of the diabetes grant programs reported the availability of community-based physical activity programs for children, youth, and families as compared with 10% before the SDPI.



In 2002, 53% of the diabetes grant programs reported the availability of school-based physical activity programs for children and youth as compared with 22% before the SDPI.

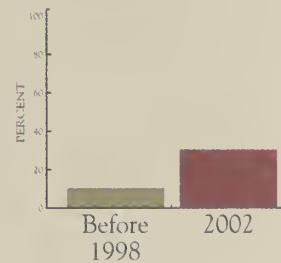
Availability of Fitness Classes for Children & Youth



Before 1998 vs 2002, $p < 0.05$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

The diabetes grant programs used funding to provide fitness classes for children and youth. In 2002, 54% of the diabetes grant programs reported the availability of fitness classes for children and youth as compared with 15% before the SDPI.

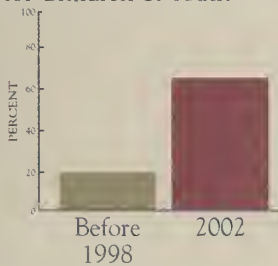
Playgrounds Built or Improved



Before 1998 vs 2002, $p < 0.05$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

Playgrounds promote physical activity and provide a safe place for children to be active. Prior to the SDPI, many AI/AN communities lacked playgrounds for children. In 2002, 31% of the diabetes grant programs reported building or improving playgrounds as compared with 10% before the SDPI.

Availability of Walking & Running Opportunities for Children & Youth



Before 1998 vs 2002, $p < 0.05$
IHS National Diabetes Program SDPI Evaluation, 1997-2002

The diabetes grant programs used funding to provide walking and running activities for children and youth. In 2002, 64% of the diabetes grant programs reported the availability of running and walking programs for children and youth as compared with 20% before the SDPI.

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Short-Term Outcomes

Availability of Various Physical Activity Programs for Children & Youth



IHS National Diabetes Program SDPI Evaluation, 2002

The diabetes grant programs used funding to offer a variety of physical activity programs for children and youth. In 2002, the diabetes grant programs reported the availability of:

- Walking and running clubs for children aged 6-11 years (27%) and adolescents aged 12-17 years (37%).
- Aerobics classes for children (6%) and adolescents (17%).
- Sports teams for children (22%) and adolescents (26%).
- Swimming classes for children (15%) and adolescents (16%).
- After-school activities for children (35%) and adolescents (34%).
- Traditional games for children (24%) and adolescents (25%).

Breastfeeding promotion increased with implementation of the Special Diabetes Program for Indians.

Why is this important?

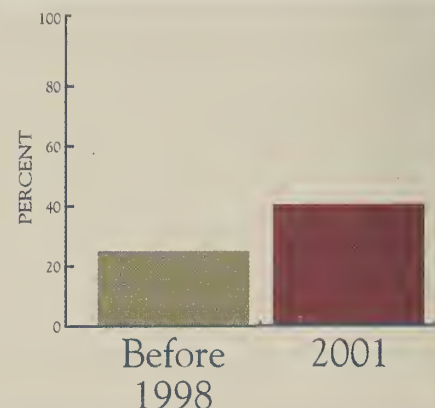
Breast milk has long been recognized and recommended as the ideal source of nutrition for infants. Studies show that breastfed children may be protected from acquiring type 2 diabetes.³⁹ The Pima Indian study found that infants who were breastfed for at least two months had a significantly decreased risk of developing diabetes before the age of 40 years.⁴⁰ Furthermore, several epidemiologic studies have shown that breastfed infants were less likely to be overweight as children and young adults.⁴¹

Phoenix Indian Medical Center Breastfeeding Program:

The Phoenix Indian Medical Center (PIMC) Diabetes Center of Excellence used diabetes grant funds to implement a breastfeeding program. The goal of the program was to demonstrate simple and efficient breastfeeding methods and to explore the potential for breastfeeding as a protective factor against the development of type 2 diabetes.

Rates of Breast Feeding at the Phoenix Indian Medical Center

Before 1998 vs 2001, $p < 0.002$
PIMC Breast Feeding Initiative Evaluation



Approximately 1,600 mothers and their infants participated in the breastfeeding program. Since the inception of the breastfeeding program, the rates of breastfeeding at PIMC have increased from 24% in 1997 (prior to the SDPI) to over 40% in 2001.



Mothers at the Isleta Pueblo and many other tribes received education and support for breastfeeding.

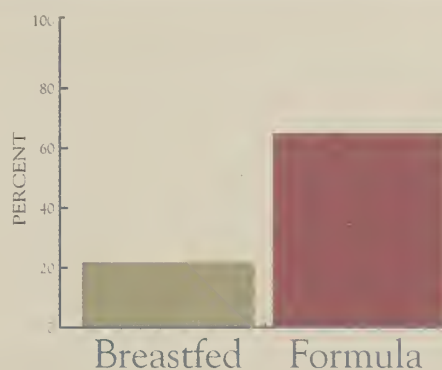
CHAPTER FOUR

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Short-Term Outcomes

Overweight/Obesity
Prevalence at PIMC
Among Children
Ages 3-4 Years by
Their Feeding Choice
at 6 Months of Age

IHS National Diabetes Program
Diabetes Care & Outcomes Audit



Children who are breastfed have lower rates of obesity and overweight than formula fed children. At PIMC in 1999, 23% of breastfed children were overweight at 3-4 years compared with 64% of formula fed children of the same age.

Intermediate Outcomes

What are intermediate outcomes? Intermediate outcomes measure whether interventions resulted in improvements in risk factors for the onset of diabetes complications and include clinical measures, such as blood sugar control, blood pressure control, protein in the urine, cardiovascular disease risk factors, and Body Mass Index (a measure of overweight and obesity).

The IHS National Diabetes Program was able to measure intermediate outcomes in its evaluation of the Special Diabetes Program for Indians.

This section includes data on the following categories of intermediate outcomes:

- Glycemic (blood sugar or blood glucose) control
- Blood pressure control
- Protein in the urine (proteinuria)
- Cardiovascular disease risk factors
- Body Mass Index (a measure of overweight and obesity)

This section includes data on the following specific **intermediate outcomes**:

Control of blood glucose steadily improved with implementation of the Special Diabetes Program for Indians. A1C levels: 1996-2002 (p. 92)

Blood pressure control steadily improved with implementation of the Special Diabetes Program for Indians. Diastolic blood pressure levels: 1997-2002 (p. 93)

Total cholesterol levels steadily improved with implementation of the Special Diabetes Program for Indians. Total cholesterol levels: 1997-2002 (p. 94)

Control of triglyceride levels steadily improved with implementation of the Special Diabetes Program for Indians. Triglyceride levels: 1997-2002 (p. 95)

Control of LDL cholesterol (the "bad" cholesterol) steadily improved with implementation of the Special Diabetes Program for Indians. Mean LDL Levels: 1998-2002 (p. 96)

Treatment to prevent and delay the progression of diabetic kidney disease has improved since implementation of the Special Diabetes Program for Indians. Risk of diabetic kidney disease: 1997-2002 (p. 97)

Certain diabetes program elements implemented with SDPI were associated with **improved Body Mass Index (BMI) control**. (p. 98)

Treatment of risk factors for cardiovascular disease improved since implementation of the Special Diabetes Program for Indians. Cardiovascular risk factors: 2001-2002 (p. 100)

Certain diabetes program elements implemented with SDPI were associated with **better blood pressure control**. (p. 102)

Certain diabetes program elements implemented with SDPI were associated with **better triglyceride level control**. (p. 103)

The IHS National Diabetes Program was able to measure intermediate outcomes in its evaluation of the Special Diabetes Program for Indians.

Treatment to prevent and delay progression of diabetic eye disease have improved since implementation of the Special Diabetes Program for Indians. Diabetic eye exams: 1997-2002 (p. 104)

Certain diabetes program elements implemented with SDPI were associated with better glycemic control. (p. 106)

Certain diabetes program elements implemented with SDPI were associated with better cholesterol level control. (p. 108)

Certain diabetes program elements implemented with SDPI were associated with better LDL cholesterol level control. (p. 110)

Providing individualized medical nutrition therapy services to patients with diabetes improves A1C levels. (p. 112)

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Intermediate Outcomes

"I eat low-fat protein and limited carbohydrates. I have energy all day long. My blood sugar level averages about 115. I really don't know what to do with all this extra energy. Maybe I could sell some. Do you have a dirty house or car for me to clean?"

Robert Chasing Hawk (Cheyenne River Sioux)



Control of blood glucose steadily improved with implementation of the Special Diabetes Program for Indians.

A1C levels: 1996–2002



**"My cholesterol is under 200.
My triglycerides are under 200.
My hemoglobin A1C is 7.2. I've
learned it's important to keep
track of all this."**

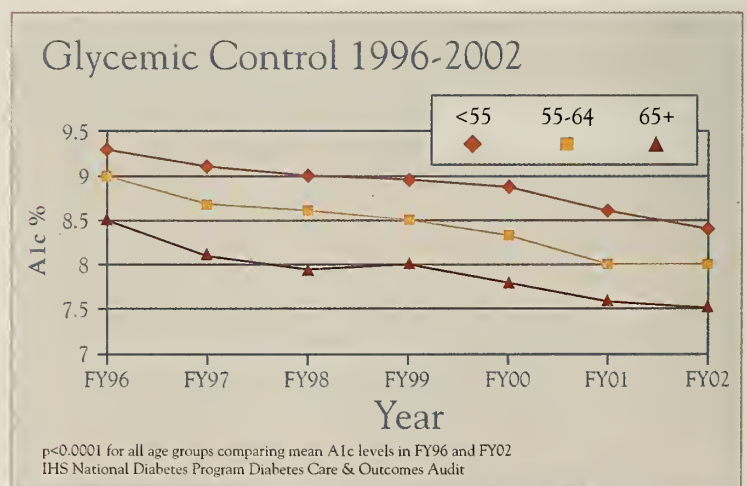
Eldean Cutschall (Oglala Sioux)

Why is this important?

Large clinical studies have shown that better glycemic control (i.e., better blood sugar or blood glucose control) reduces the complications of diabetes.⁴² High A1C levels indicate poor glycemic control, whereas low A1C levels indicate better control (6% and below is considered normal glycemic control).

A 1% decrease in absolute level A1C translates into a:

- 14% decrease in total mortality
- 21% decrease in diabetes-related deaths
- 14% decrease in myocardial infarction
- 40% decrease in eye disease
- 12% decrease in strokes
- 43% decrease in amputations
- 24% decrease in kidney failure
- \$800 per person per year reduction in health care costs



Since 1996, AI/ANs with diabetes experienced a steady improvement in glycemic control, as shown by a decrease in mean A1C level, for all age groups.

Blood pressure control steadily improved with implementation of the Special Diabetes Program for Indians.

Diastolic blood pressure levels: 1997–2002

Why is this important?

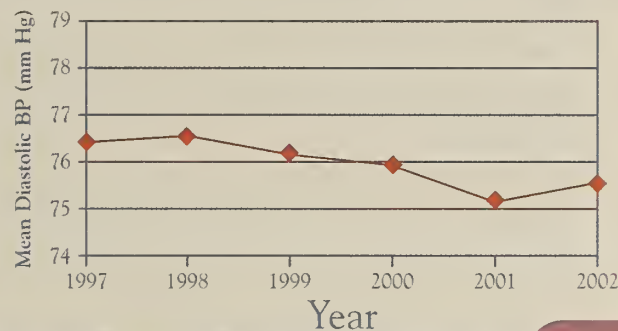
Lower blood pressure levels in people with diabetes reduce the risk of heart disease and stroke by 33–50%. Blood pressure control reduces the risk of eye, kidney, and nerve disease by 33%.⁴³

National standards recommend that people with diabetes keep their blood pressure below certain levels:

- Systolic blood pressure below 130 mm Hg
- Diastolic blood pressure below 80 mm Hg

Mean Diastolic Pressure 1997-2002

Overall $p < 0.05$, between years 1997 and 2002
IHS National Diabetes Program
Diabetes Care & Outcomes Audit
Adjusted for age, sex, duration of diabetes,
body mass index, and age



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Intermediate Outcomes

Since 1997, blood pressure control among AI/ANs with diabetes has improved, as shown by a steady decrease in mean diastolic blood pressure.

"My blood pressure reading was 128/80. That's good. That's right where it should be."

Sandra Charnoski, right, with
Brian Brunelle (Red Lake Ojibwe)



Control of mean total cholesterol levels has steadily improved with implementation of the Special Diabetes Program for Indians.

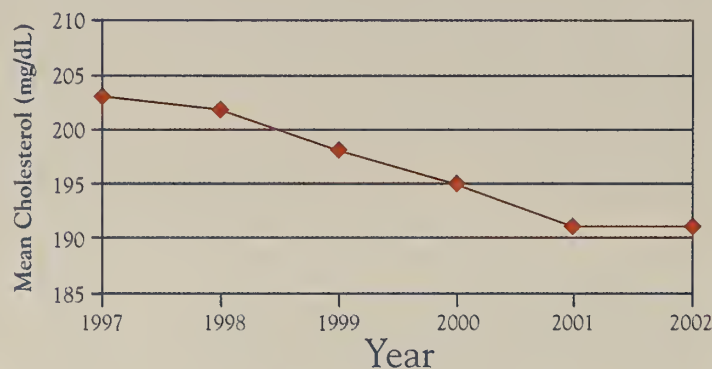
Total cholesterol levels: 1997–2002

Why is this important?

Improved control of cholesterol levels is known to reduce the risk of cardiovascular complications by 20–50%.⁴⁴

National standards recommend that people with diabetes keep their cholesterol levels below 200 mg/dl.

Mean Total Cholesterol Level 1997-2002*



Overall $p < 0.0001$, between each year $p < 0.05$

IHS National Diabetes Program Diabetes Care & Outcomes Audit

*Adjusted for age, sex, body mass index, diabetes treatment type
and age*sex, age*bmi, sex*bmi

Since 1997, cholesterol control in AI/ANs with diabetes has significantly improved, as shown by a steady decrease in mean total cholesterol levels (203 mg/dl in 1997 vs. 191 mg/dl in 2002; $p < 0.0001$).

Control of triglyceride levels steadily improved with implementation of the Special Diabetes Program for Indians.

Triglyceride levels: 2001-2002

Why is this important?

Improved control of triglyceride levels reduces the risk of cardiovascular complications by 20–50%.⁴⁵

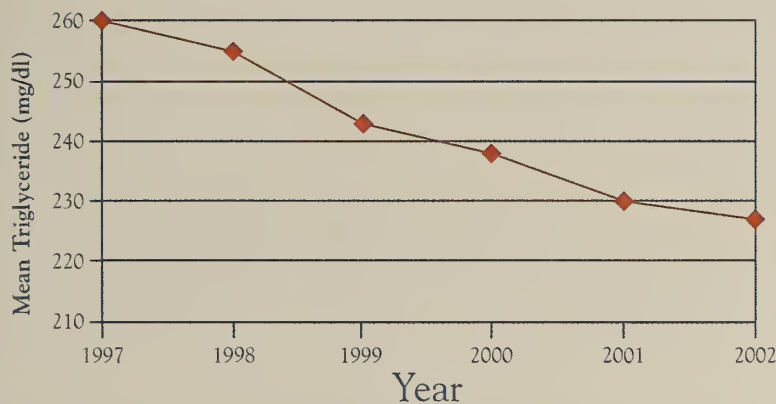
National standards recommend that people with diabetes keep their triglyceride levels below 150 mg/dl.

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Intermediate Outcomes

Mean Triglyceride Levels
1997-2002*



Between years 1997 and 2002, $p < 0.05$

IHS National Diabetes Program Diabetes Care & Outcomes Audit

*Adjusted for age, sex, body mass index, diabetes treatment type and age*sex, age*bmi, sex*bmi

Since 1997, triglyceride control in AI/ANs with diabetes has significantly improved, as shown by a decrease in mean triglyceride levels (260 mg/dl in 1997 vs. 227 mg/dl in 2002).

Control of LDL cholesterol (the “bad” cholesterol) steadily improved with implementation of the Special Diabetes Program for Indians.

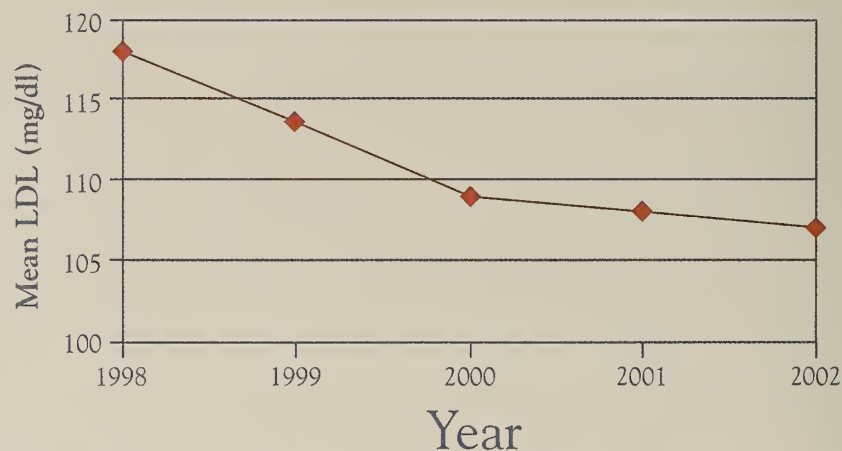
Mean LDL Levels: 1998–2002

Why is this important?

Improved control of LDL cholesterol levels in people with diabetes reduces the risk of cardiovascular disease by 20–50%.⁴⁶

National standards recommend that people with diabetes keep their LDL cholesterol levels below 130 mg/dl and ideally below 100 mg/dl.

Mean LDL Levels 1998–2002*



Between years 1998 and 2001 $p < 0.05$

IHS National Diabetes Program Diabetes Care & Outcomes Audit

*Adjusted for age, sex, body mass index, diabetes treatment type and age*sex

Since 1998, cholesterol control in AI/ANs with diabetes has significantly improved, as shown by a steady decrease in mean LDL cholesterol level (118 mg/dl in 1998 vs. 107 mg/dl in 2002).

Treatment to prevent and delay the progression of diabetic kidney disease has improved since implementation of the Special Diabetes Program for Indians.

Risk of diabetic kidney disease: 1997–2002

Why is this important?

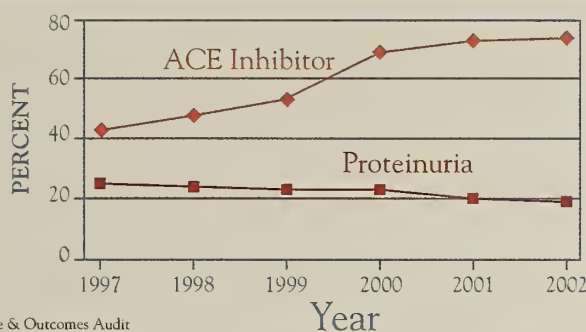
- Proteinuria (i.e., protein measured in the urine with a urinalysis test) is a marker for diabetic kidney disease.
- Small amounts of protein in the urine, known as microalbuminuria, appear very early in diabetic kidney disease and may indicate a point at which diabetic kidney disease is reversible.
- Medications called ACE inhibitors have been shown to reverse proteinuria and microalbuminuria and to delay the progression of diabetic kidney disease.⁴⁷

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Proteinuria & ACE Inhibitor Use for Diabetic Kidney Disease 1997-2002

Between years 1997 and 2002
IHS National Diabetes Program Diabetes Care & Outcomes Audit

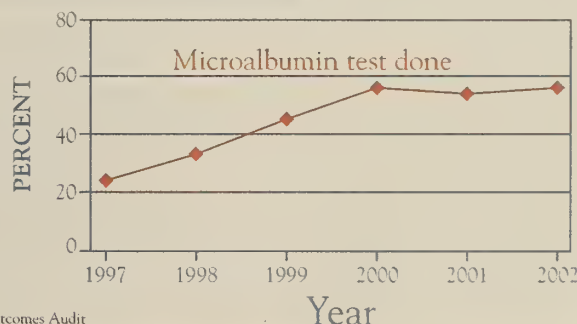


Intermediate Outcomes

Since 1997, the prevalence of proteinuria in AI/ANs has decreased (from 25% in 1997 to 19% in 2002) as ACE inhibitor use has increased (from 42% in 1997 to 74% in 2002). It is likely that these two trends are related since ACE inhibitors have been shown to reverse proteinuria and delay progression of kidney failure.

Testing for Early Diabetic Kidney Disease (Microalbuminuria)

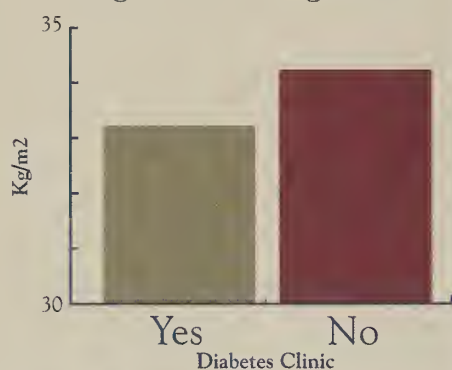
Between years 1997 and 2002
IHS National Diabetes Program Diabetes Care & Outcomes Audit



Since 1997, more diabetes grant programs tested for microalbuminuria (from 24% in 1997 to 56% in 2002) to find very early cases of diabetic kidney disease that may be reversible.

*Certain diabetes program elements implemented with SDPI were associated with **improved Body Mass Index (BMI) control.***

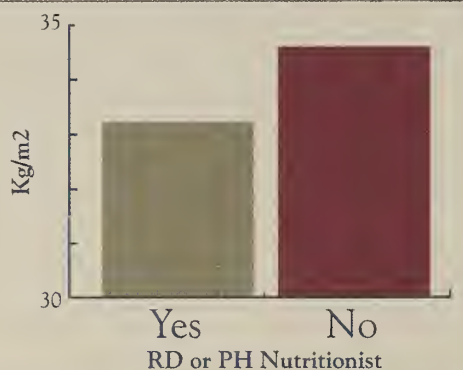
Diabetes Clinic and Mean BMI Levels Among Grant Programs*



*Adjusted for age, sex, duration of diabetes
 $p < 0.0001$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 1997-2002

Patients in diabetes grant programs that established a diabetes clinic had significantly lower mean BMIs than patients in programs that did not (mean BMIs of 33.2% vs. 34.2%, respectively).

Having a Registered Dietitian or Public Health Nutritionist & Diabetes Team on Mean BMI Levels Among Grant Programs*



*Adjusted for age, sex, duration of diabetes
 $p < 0.0001$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 1997-2002

Patients in diabetes grant programs that included a Registered Dietitian or Public Health Nutritionist on their diabetes team had significantly lower mean BMIs than patients in programs that did not (mean BMIs of 33.2% vs. 34.6%, respectively).

Why is this important?

Body Mass Index (BMI) is a simple measure of weight in relation to height. The National Institutes of Health recommends the BMI as an objective indicator of whether a person is obese (BMI >30), overweight (BMI 25–30), underweight (BMI <20), or at a healthy weight (BMI 20–25). Most individuals with type 2 diabetes are overweight or obese. These conditions negatively affect insulin resistance, glycemic (i.e., blood sugar or blood glucose) control, blood pressure control, and blood lipid control. Weight loss is important for decreasing insulin resistance, improving glycemic control, reducing blood pressure, and improving blood lipid control.

Diabetes grant programs chose to implement certain elements of diabetes care. These elements are believed to result ultimately in improved outcomes, such as reduction in overweight and/or obesity, as measured by BMI level.

Our analysis found significantly lower BMI levels for patients who received care in programs with some of these program elements:

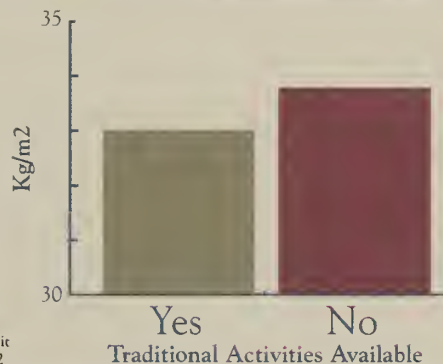
- Diabetes clinics
- Diabetes teams with Registered Dietitians or Public Health Nutritionists
- Traditional food and nutrition programs
- Nutrition education budgets



Blackfeet women reduced their Body Mass Index by weight training which helps build fat-burning muscle mass.

Having Traditional Food & Nutrition Activities for People with Diabetes & Mean BMI Levels Among Grant Programs*

*Adjusted for age, sex, duration of diabetes, $p < 0.0001$ difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 1997-2002



Patients in diabetes grant programs that established traditional food and nutrition activities for people with diabetes had significantly lower mean BMIs than patients in programs who did not (mean BMIs of 33.0% vs. 33.8%, respectively).

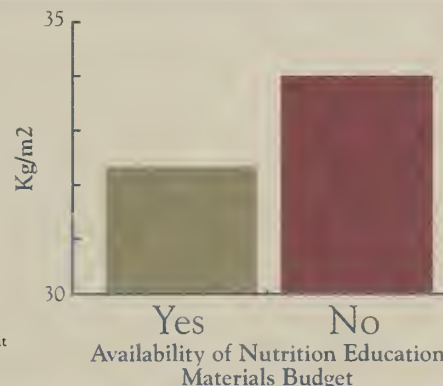
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Availability of Nutrition Education Materials Budget & Mean BMI Levels Among Grant Programs*

*Adjusted for age, sex, duration of diabetes, $p < 0.003$ difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 1997-2002



Patients in diabetes grant programs with a nutrition education budget had significantly lower mean BMIs than patients in programs that did not (mean BMIs of 32.3% vs. 34.0%, respectively).

Treatment of risk factors for cardiovascular disease improved since implementation of the Special Diabetes Program for Indians.

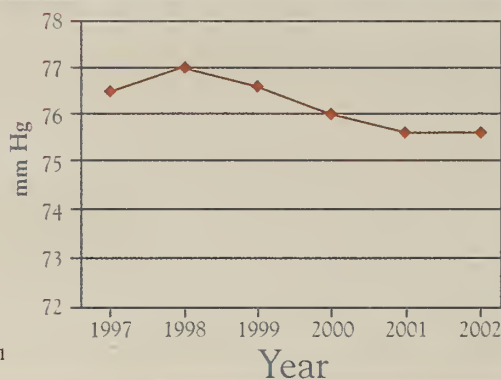
Cardiovascular risk factors: 2001-2002

Why is this important?

Cardiovascular disease (CVD) is the leading cause of death among AI/ANs with diabetes. While CVD mortality is *decreasing* in the general U.S. population, it is actually *increasing* in the AI/AN population. The Strong Heart Study, a study of heart disease among AI/ANs, demonstrated that CVD rates are higher in both AI/AN men and women than in the general U.S. population. The Strong Heart Study also demonstrated that 56–78% of all CVD events in AI/AN occur in people with diabetes.⁴⁸

Many studies have shown that treating risk factors can reduce CVD in people with diabetes. Simple interventions, such as blood pressure control, LDL reduction, aspirin use, and tobacco cessation, can significantly reduce the risk of CVD.⁴⁹

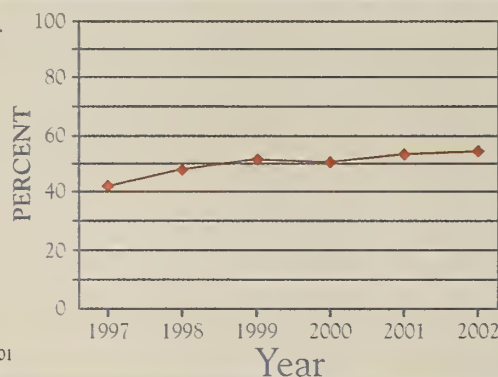
Cardiovascular Disease Risk: Blood Pressure Control



IHS Diabetes Care & Outcomes Audit 1997-2002
Between years 1997 and 2002 $p < 0.0001$

Blood pressure control in people with diabetes is associated with a lower risk of CVD. Since 1997, blood pressure control in AI/ANs with diabetes has improved, as shown by a steady decrease in mean diastolic blood pressure level (the systolic blood pressure remained unchanged).

Cardiovascular Disease Risk: Tobacco-Free Status



IHS Diabetes Care & Outcomes Audit 1997-2002
Between years 1997 and 2002 $p < 0.0001$

People with diabetes who are tobacco-free have a lower risk of CVD. Since 1997, the proportion of AI/ANs with diabetes that do not use tobacco has improved, as shown by a steady increase in individuals who are tobacco-free.

"Diabetes and heart disease run in my family. I have diabetes, and have had heart surgery. When I learned how bad smoking is, I quit. I haven't smoked for over a year."

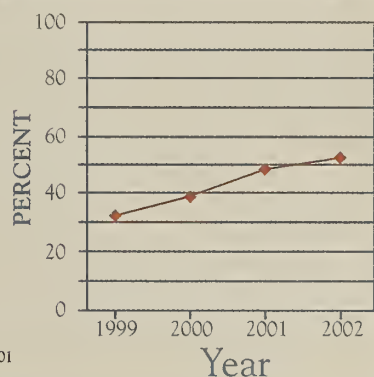
Maxine White (Omaha Sioux)



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Cardiovascular Disease Risk: Aspirin Use in Persons >30 Years

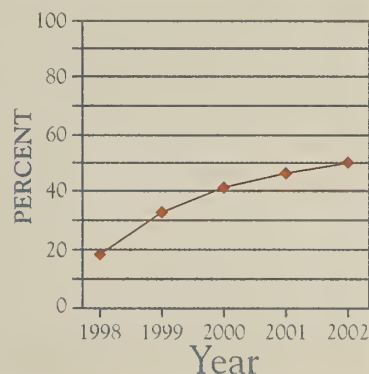


IHS Diabetes Care & Outcomes Audit 1999-2001
Between years 1999 and 2001 $p < 0.0001$

Aspirin use in people with diabetes is associated with a lower risk of CVD. Since 1999, aspirin use in AI/ANs with diabetes has improved, as shown by a steady increase in the proportion of individuals on aspirin.

Intermediate Outcomes

Cardiovascular Disease Risk: LDL Control



IHS Diabetes Care & Outcomes Audit 1998-2001
Between years 1998 and 2001 $p < 0.0001$

LDL cholesterol control in people with diabetes is associated with a lower risk of CVD. Since 1998, LDL cholesterol control in AI/ANs with diabetes has improved, as shown by a steady increase in the proportion of individuals with values of LDL less than 130 mg/dl.

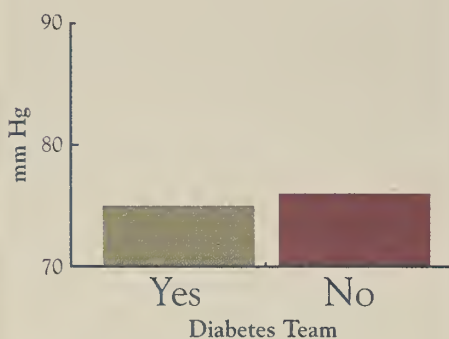
Certain diabetes program elements implemented with Special Diabetes Program for Indians were associated with better blood pressure control.

Why is this important:

Diabetes grant programs chose to implement certain elements of diabetes care. These elements are believed to result ultimately in improved outcomes, such as blood pressure control as measured by mean blood pressure. As shown in this series of slides, our analysis found significantly lower mean diastolic blood pressures for patients who received care in programs with at least one of these program elements:

- Diabetes team
- Diabetes clinic
- Use of ACE inhibitors

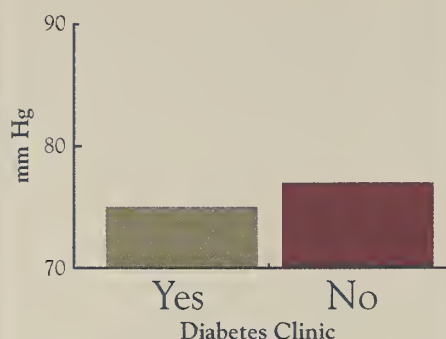
Diabetes Team & Mean Diastolic Blood Pressure Levels* Among Grant Programs



*Adjusted for age, sex, duration of diabetes, BMI
 $p < 0.001$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that established a diabetes team had significantly lower mean diastolic blood pressure levels than patients in programs that did not (mean diastolic blood pressure levels of 75 mm Hg vs. 76 mm Hg, respectively).

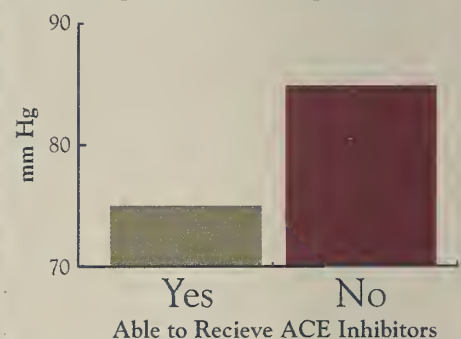
Diabetes Clinic on Mean Diastolic Blood Pressure Levels* Among Grant Programs



*Adjusted for age, sex, duration of diabetes, BMI
 $p < 0.0001$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that established a diabetes clinic had significantly lower mean diastolic blood pressure levels than patients in programs that did not (mean diastolic blood pressure levels of 75 mm Hg vs. 77 mm Hg, respectively).

ACE Inhibitors for People with Diabetes & Mean Diastolic Blood Pressure Levels* Among Grant Programs

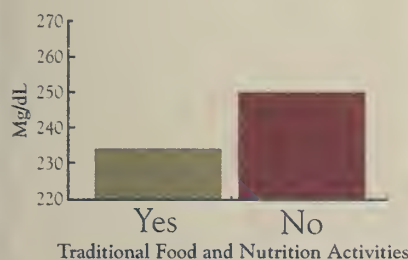


*Adjusted for age, sex, duration of diabetes, BMI
 $p < 0.0001$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that had widespread availability of ACE inhibitors had significantly lower mean diastolic blood pressure levels than patients in programs that did not (mean diastolic blood pressure levels of 75 mm Hg vs. 85 mm Hg, respectively).

Certain diabetes program elements implemented with Special Diabetes Program for Indians were associated with better triglyceride level control.

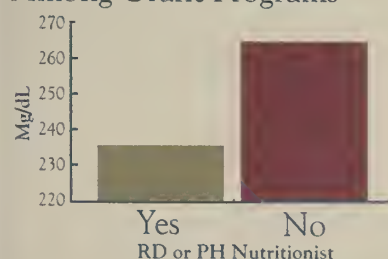
Having Medical Nutrition Therapy Services in Clinic & Mean Triglyceride Levels* Among Grant Programs



*Adjusted for age, sex, BMI • $p < 0.03$ difference in adjusted means IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 2002

The diabetes grant programs that offered Medical Nutrition Therapy had significantly lower mean triglyceride levels than programs that did not (mean triglyceride levels of 234 mg/dl vs. 250 mg/dl, respectively).

Having a Registered Public Health Nutritionist & Diabetes Team on Mean Triglyceride Levels* Among Grant Programs



*Adjusted for age, sex, BMI • $p < 0.002$ difference in adjusted means IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 2002

Why is this important:

Diabetes grant programs chose to implement certain elements of diabetes care. These elements are believed to result ultimately in improved outcomes, such as triglyceride level control.

Our analysis found significantly lower mean triglyceride levels for patients who received care in programs with at least one of these program elements:

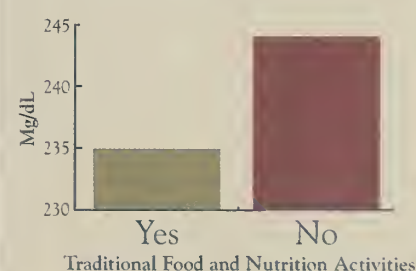
- Medical Nutrition Therapy
- Diabetes teams with Registered Dietitians and Public Health Nutritionists
- Traditional foods and nutrition programs

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Effect of Having Traditional Food Activities on Mean Triglyceride Levels* among Grant Programs



*Adjusted for age, sex, BMI • $p < 0.05$ difference in adjusted means IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 2002

The diabetes grant programs that included a Registered Dietitian or Public Health Nutritionist on their diabetes team had significantly lower mean triglyceride levels than programs that did not (mean triglyceride levels of 236 mg/dl vs. 264 mg/dl, respectively).

Patients in diabetes grant programs that established traditional food and nutrition activities had significantly lower mean LDL cholesterol levels than patients in programs that did not (mean LDL cholesterol levels of 235 mg/dl vs. 244 mg/dl, respectively).

Treatment to prevent and delay progression of diabetic eye disease has improved since implementation of the Special Diabetes Program for Indians.

Diabetic eye exams: 1997–2002

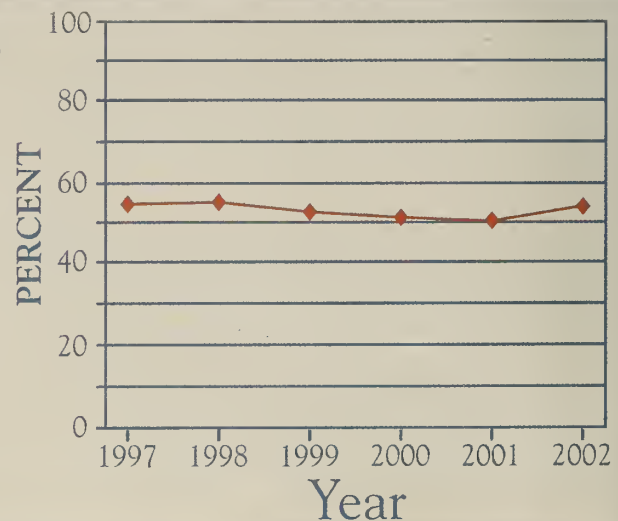
Why is this important?

Diabetic eye disease is the leading cause of new blindness in adults. Since diabetic eye disease is a “silent disease,” yearly eye exams by an eye professional are needed to find the disease early enough to treat. Treating diabetic eye disease with laser therapy can reduce the development of severe vision loss by 50–60%.⁵⁰

While overall eye exam rates in the IHS have not changed significantly over time, an innovative strategy was implemented recently and is associated with increased eye exam rates. In 1998, Congress directed the IHS to work with the Joslin Diabetes Center to explore the use of telemedicine to improve diabetic eye exam rates in AI/AN communities. Using the funds provided by Congress, the IHS National Diabetes Program has collaborated with the Joslin Vision Network (JVN), a teleophthalmology program that facilitates the diagnosis, management, and treatment of diabetic eye disease.

Yearly Eye Exams 1997-2002

IHS National Diabetes Program
Diabetes Care & Outcomes Audit
Between 1997-2002



Since 1997, rates of yearly diabetic eye exams have remained the same in AI/AN communities, in spite of efforts to increase them.

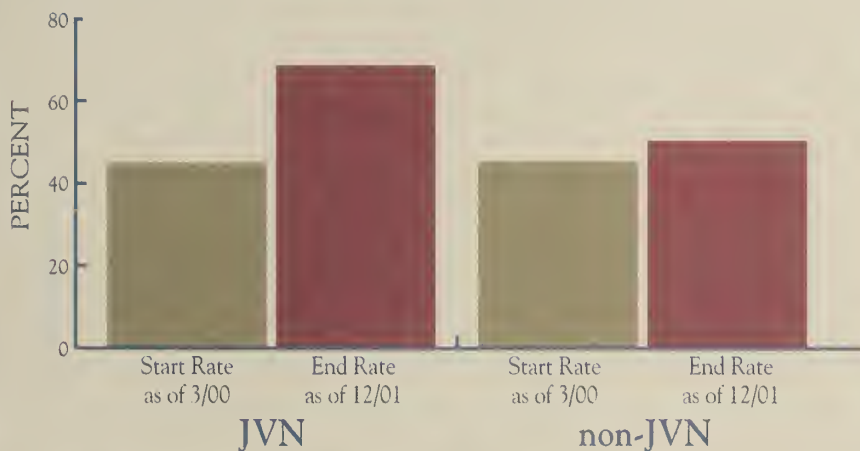
Marie Toya (Jemez Pueblo) knows that regular eye checks will help her keep her eyesight. She gets her eyes checked at the clinic at the Jemez Pueblo once a year. Marie participates in the pueblo's aerobics class or walks for exercise. She has switched from cooking with lard to cooking with vegetable oil. And she has cut back on food portions. These changes have helped her gain control of her blood sugar, and avoid eye problems. "I don't have any vision problems," she says.



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Eye Exam Rate Among People with Diabetes at JVN Clinics & non-JVN Clinics (3/00 to 12/01)



Comparison of JVN vs. non-JVN sites, $p < 0.001$

Intermediate Outcomes

From March 2000 to December 2001, diabetic eye exam rates improved at the sites where JVN was established as compared with the sites where JVN was not established. Diabetic eye exam rates increased significantly from 45% to 69% at JVN sites, whereas exam rates did not change (46% to 51%) at non-JVN sites. More JVN sites will be established in the Indian health system in 2003.

*Certain diabetes program elements implemented with the Special Diabetes Program for Indians were associated with **better glycemic control**.*

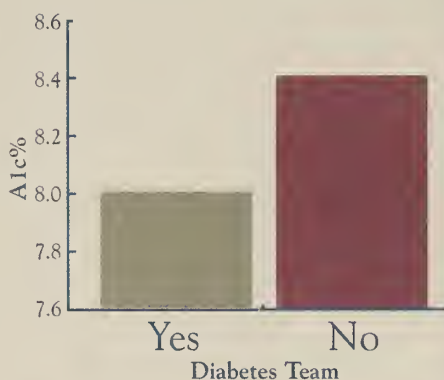
Why is this important:

Diabetes grant programs chose to implement different elements of diabetes care. These elements are believed to result ultimately in improved outcomes, such as glycemic control, as measured by A1C. In this series of slides our analysis found significantly lower A1C levels for patients who received care in programs with at least one of these program elements:

- Diabetes team
- Availability of organized diabetes education programs
- Availability of culturally appropriate diabetes materials
- Diet instruction by a registered dietitian
- Blood glucose self-monitoring

Patients in grant programs with a diabetes team had lower A1C compared to patients in programs that did not have a diabetes team.

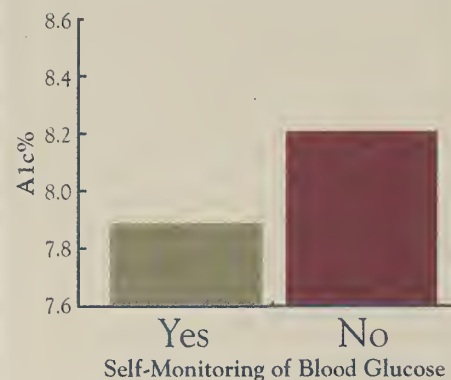
Diabetes Team & Mean A1C Levels* Among Grant Programs



*Adjusted for age, sex, duration of diabetes, treatment type, p<0.0001 difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 1997-2002

Lower A1C levels indicate better glycemic control. The diabetes grant programs that established a diabetes team had significantly lower mean A1C levels than programs that did not (mean A1C levels of 8.0% vs. 8.4%, respectively).

Self-Monitoring of Blood Glucose on Mean A1C Levels* Among Grant Programs

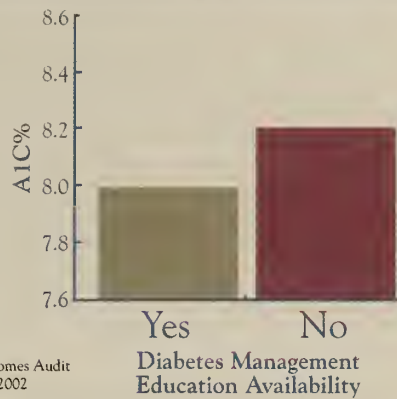


*Adjusted for age, sex, duration of diabetes, treatment type, p<0.0001 difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation 1997-2002

The diabetes grant programs that implemented blood glucose self-monitoring programs had significantly lower mean A1C levels than programs that did not (mean A1C levels of 7.9% vs. 8.2%, respectively).

Availability of Organized Diabetes Education Programs & Mean A1C Levels* Among Grant Programs

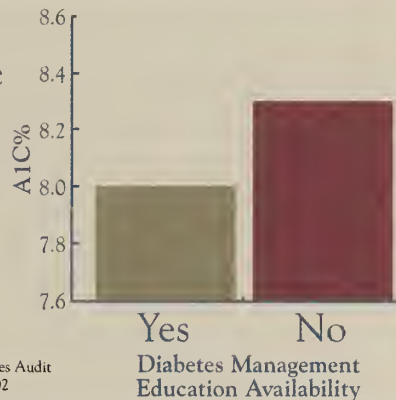
*Adjusted for age, sex, duration of diabetes, treatment type
p<0.05 difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 2002



The diabetes grant programs that implemented organized diabetes education programs had significantly lower mean A1C levels than programs that did not (mean A1C levels of 8.0% vs. 8.2%, respectively).

Availability of Culturally Appropriate Diabetes Materials & Mean A1C Levels* Among Grant Programs

*Adjusted for age, sex, duration of diabetes, treatment type
p<0.05 difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit and IHS National Diabetes Program SDPI Evaluation, 2002



The diabetes grant programs that provided culturally appropriate diabetes materials had significantly lower mean A1C levels than programs that did not (mean A1C levels of 8.0% vs. 8.3%, respectively).

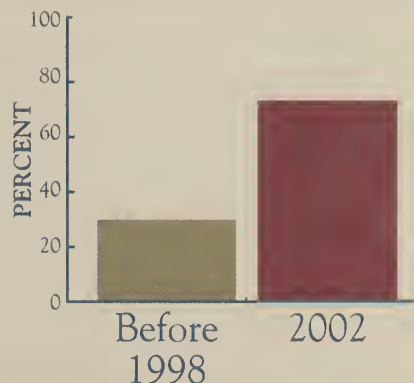
CHAPTER FOUR

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Registered Dietitian or Public Health Nutritionist on Diabetes Team

Before 1998 vs 2002, p<0.001
IHS National Diabetes Program SDPI Evaluation, 1997-2002



Diabetes grant programs used funding to increase the numbers of Registered Dietitians (RDs) and Public Health Nutritionists (PHNs) on their diabetes teams. In 2002, 72% of the diabetes grant programs reported the addition of RDs or PHNs to their diabetes teams as compared with 30% before the SDPI.

Certain diabetes program elements implemented with Special Diabetes Program for Indians were associated with better cholesterol level control.

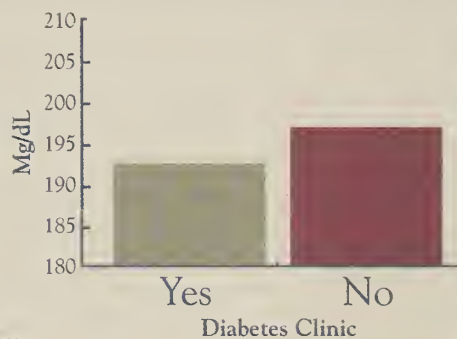
Why is this important:

Grant programs chose to implement different elements of diabetes care. These elements, such as cholesterol control, are believed to ultimately result in improved outcomes, as measured by total cholesterol level.

Our analysis found significantly lower mean cholesterol levels for patients who received care in programs with at least one of these program elements:

- diabetes clinic
- diabetes education programs,
- culturally appropriate diabetes education materials, and
- recreation, wellness, fitness and facilities.

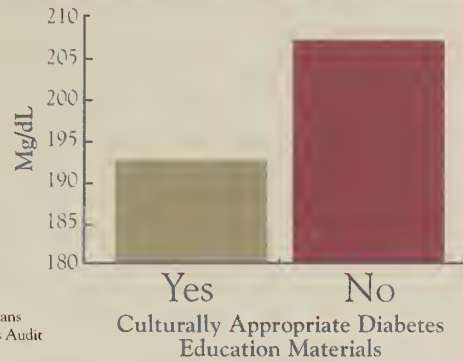
Having a Diabetes Clinic & Mean Cholesterol Levels*



*Adjusted for age, sex
 $p < 0.005$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in grant programs that established a diabetes clinic had significantly lower mean total cholesterol levels than patients in programs that did not (mean total cholesterol levels of 193 mg/dl vs. 197 mg/dl, respectively).

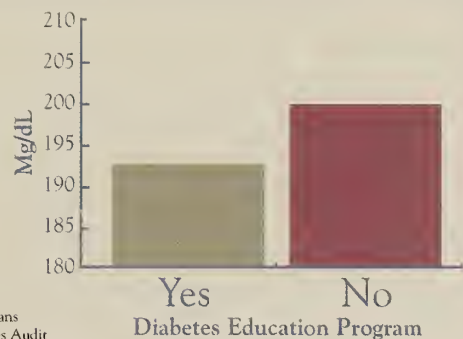
Having Access to Appropriate Diabetes Education Materials & Mean Cholesterol Levels*



*Adjusted for age, sex • $p < 0.0001$ difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit
and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that provided culturally appropriate diabetes materials had significantly lower mean total cholesterol levels than patients in programs that did not (mean total cholesterol levels of 193 mg/dl vs. 207 mg/dl, respectively).

Having a Diabetes Education Program & Mean Cholesterol Levels*



*Adjusted for age, sex • $p < 0.002$ difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit
and IHS National Diabetes Program SDPI Evaluation, 2002

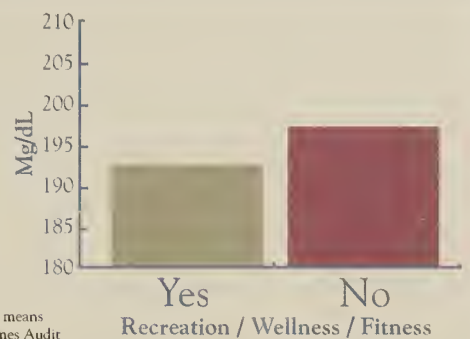
Patients in diabetes grant programs that implemented diabetes education programs had significantly lower mean total cholesterol levels than patients in programs that did not (mean total cholesterol levels of 193 mg/dl vs. 200 mg/dl, respectively).

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Intermediate Outcomes

Having Facilities & Mean Cholesterol Levels*



*Adjusted for age, sex • $p < 0.0001$ difference in adjusted means
IHS National Diabetes Program Diabetes Care & Outcomes Audit
and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that established recreation, wellness, or fitness facilities had significantly lower mean total cholesterol levels than patients in programs that did not (mean total cholesterol levels of 193 mg/dl vs. 197 mg/dl, respectively).

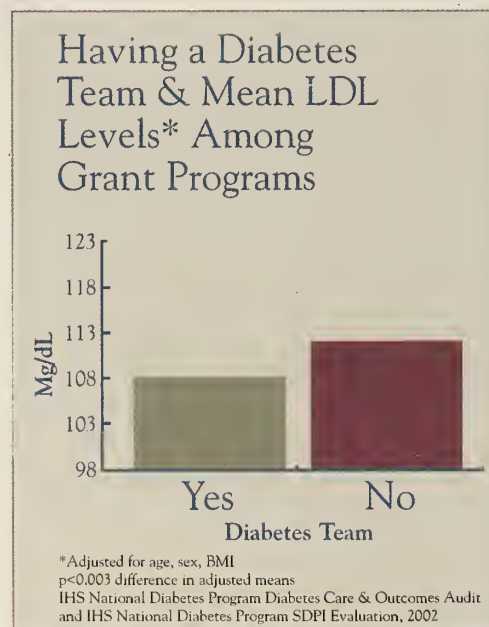
Certain diabetes program elements implemented with Special Diabetes Program for Indians were associated with better LDL cholesterol level control.

Why is this important:

Diabetes grant programs chose to implement different elements of diabetes care. These elements are believed to result ultimately in improved outcomes, such as LDL cholesterol control.

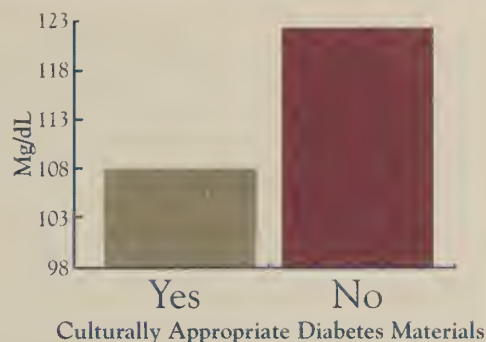
As shown in this series of slides, our analysis found significantly lower mean LDL cholesterol levels for patients who received care in programs with at least one of these program elements:

- Diabetes teams
- Culturally appropriate diabetes education materials
- Organized diabetes education programs
- Recreation, wellness, and fitness facilities



Patients in diabetes grant programs that established a diabetes team had significantly lower mean LDL cholesterol levels than patients in programs that did not (mean LDL cholesterol levels of 108 mg/dl vs. 112 mg/dl, respectively).

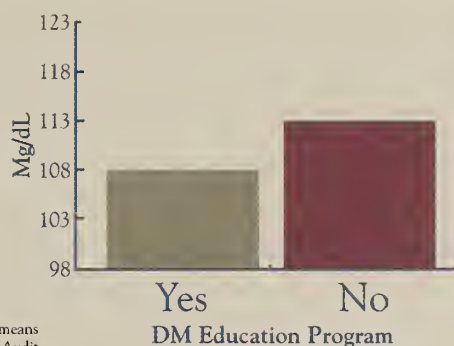
Having Culturally Appropriate Diabetes Education Materials & Mean LDL Levels* Among Grant Programs



*Adjusted for age, sex, BMI
 $p < 0.001$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that provided culturally appropriate diabetes materials had significantly lower mean LDL cholesterol levels than patients in programs that did not (mean LDL cholesterol levels of 108 mg/dl vs. 122 mg/dl, respectively).

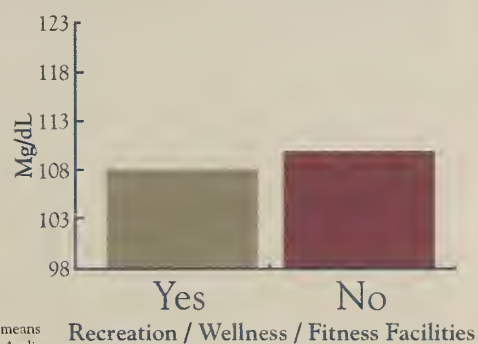
Having Organized Diabetes Education Programs & Mean LDL Levels* Among Grant Programs



*Adjusted for age, sex, BMI • $p < 0.03$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that provided organized diabetes education programs had significantly lower mean LDL cholesterol levels than patients in programs that did not (mean LDL cholesterol levels of 108 mg/dl vs. 113 mg/dl, respectively).

Having Recreation/Wellness/Fitness Facilities & Mean LDL Levels* Among Grant Programs



*Adjusted for age, sex, BMI • $p < 0.08$ difference in adjusted means
 IHS National Diabetes Program Diabetes Care & Outcomes Audit
 and IHS National Diabetes Program SDPI Evaluation, 2002

Patients in diabetes grant programs that established recreation, wellness, and fitness facilities had lower mean LDL cholesterol levels than patients in programs that did not (mean LDL cholesterol levels of 108 mg/dl vs. 110 mg/dl, respectively), though the difference was not statistically significant.

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Providing individualized medical nutrition therapy services to patients with diabetes improves A1C levels.

Why is this important?

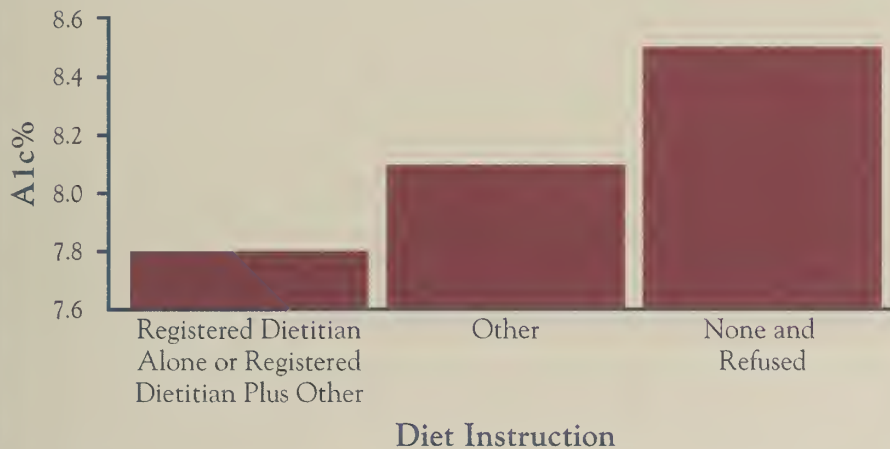
The Institute of Medicine's (IOM) 1999 report, titled *The Role of Nutrition in Maintaining Health in the Nation's Elderly*, concluded that there is "consistent evidence from limited data to indicate that Medical Nutrition Therapy (MNT) is effective as part of a comprehensive approach to the management and treatment of the following conditions: dyslipidemia, hypertension, heart failure, diabetes, and kidney disease."

Consistent with the American Diabetes Association's recommendations, the IOM recommended that individualized MNT be provided by a Registered Dietitian as part of the multidisciplinary approach to the management of diabetes, which includes diet, exercise, medications and blood glucose monitoring.⁵¹

Nutrition education
helped many reduce
their A1C levels.



Diet Instruction on Mean A1C Levels* Among Grant Programs



*Adjusted for age, sex, duration of diabetes, treatment type • $p < 0.0001$ difference in adjusted means
Source

Patients who had dietary instruction by a Registered Dietitian or a Registered Dietitian plus other medical provider had statistically significant lower mean adjusted A1C levels as compared to patients who received diet instruction from other medical providers (no dietitian instruction), did not receive diet instruction, or refused diet instruction.

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Intermediate Outcomes



"I don't say that I am diabetic. But I do say that I have high blood sugar, and I can combat it."

Willard D. Phillips, Sr. (Omaha)

The IHS National Diabetes Program improved the accuracy of baseline long-term outcomes measures so that changes resulting from the Special Diabetes Program for Indians and other interventions could be assessed.

Long-term Outcomes

What are long-term outcomes?

Long-term outcomes measure whether programs and interventions eventually reduce the morbidity and mortality from diabetes in a population. This can be measured through improvements in diabetes prevalence, mortality, earlier diagnosis, complications rates, improved health costs, and improved health behaviors of the community.

The IHS National Diabetes Program improved the accuracy of baseline long-term outcomes measures (i.e., prevalence and mortality) so that changes resulting from the Special Diabetes Program for Indians and other interventions could be assessed.

The IHS National Diabetes Program also established a Diabetes Data Warehouse, using Resource and Patient Management System (RPMS) data, with funds from the Special Diabetes Program for Indians. The purpose of the data warehouse is to enable the IHS National Diabetes Program to accurately track long-term complications of diabetes in AI/AN communities.

This section includes data on the following long-term outcomes:

- Diabetes prevalence
- Diabetes mortality

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Outcomes

Long-Term Outcomes

Diabetes prevalence: Accurate baseline data for ongoing measurement of the prevalence of diabetes in AI/ANs over time was established with implementation of the Special Diabetes Program for Indians.

Why is this important?

The Special Diabetes Program for Indians allowed local programs to use grant funding to improve their screening efforts for diabetes. As a result, diabetes grant programs were able to diagnose and treat a significant number of individuals who had diabetes but did not know it. This process of finding undiagnosed cases of diabetes led to an expected increase in the prevalence of diabetes during the first few years of the Special Diabetes Program for Indians. Despite the challenges of addressing diabetes, the many prevention and treatment activities implemented with the Special Diabetes Program for Indians are expected to reduce the prevalence of diabetes over the next few decades.

Many IHS Areas used the grant funds to improve the accuracy of diabetes prevalence data. Prior to the Special Diabetes Program for Indians, the capacity of programs to measure diabetes accurately varied widely, with most programs undercounting the number of people who have diabetes in their communities. Although these data and surveillance system improvements have resulted in an increase in diabetes prevalence estimates during the first few years of the Special Diabetes Program for Indians, they have created an accurate and reliable baseline of prevalence data. This baseline will allow the IHS to track the effects of Special Diabetes Program for Indians activities on prevalence over time.

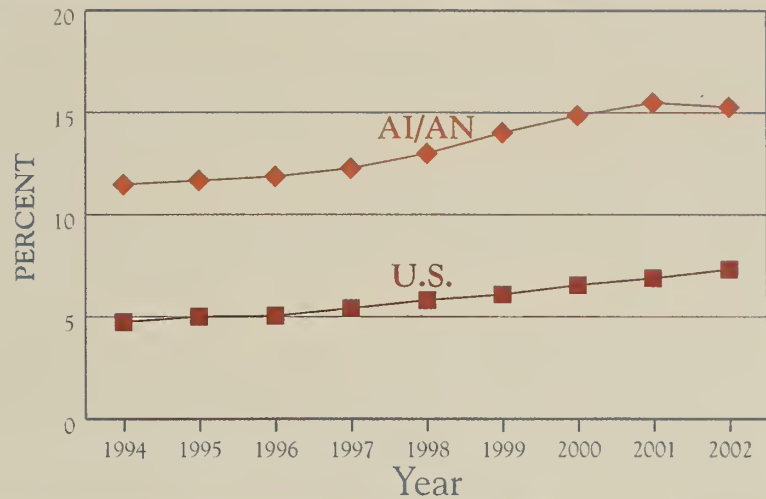
Data improvements implemented under the Special Diabetes Program for Indians now allow accurate measurement of the following types of prevalence data:

- Prevalence of diabetes in AI/AN, over time
- Increases in prevalence by age group, and compared to the general population
- Prevalence compared to other racial and ethnic groups
- Prevalence among IHS Areas
- Increases in prevalence among IHS Areas during specific time periods
- Changes in prevalence among AI/AN youth

Although these data and surveillance system improvements have resulted in an increase in diabetes prevalence estimates during the first few years of the Special Diabetes Program for Indians, they have created an accurate and reliable baseline of prevalence data.

Prevalence of Diagnosed Diabetes Among American Indian/Alaska Native Adults and U.S. General Population, 1994-2002

Source FY97-02 IHS APC and user population files; excludes data from 40 service units (7% of the IHS user population)
*Based on the 2000 U.S. population



The IHS can now more accurately measure and track the prevalence of diabetes among AI/ANs over time. The increase seen in this graph is, in part, due to improved screening and data collection efforts. It is hoped that diabetes prevalence will decrease over time due to the SDPI program activities and, if that occurs, these measurement capabilities will allow us to measure it and report it.

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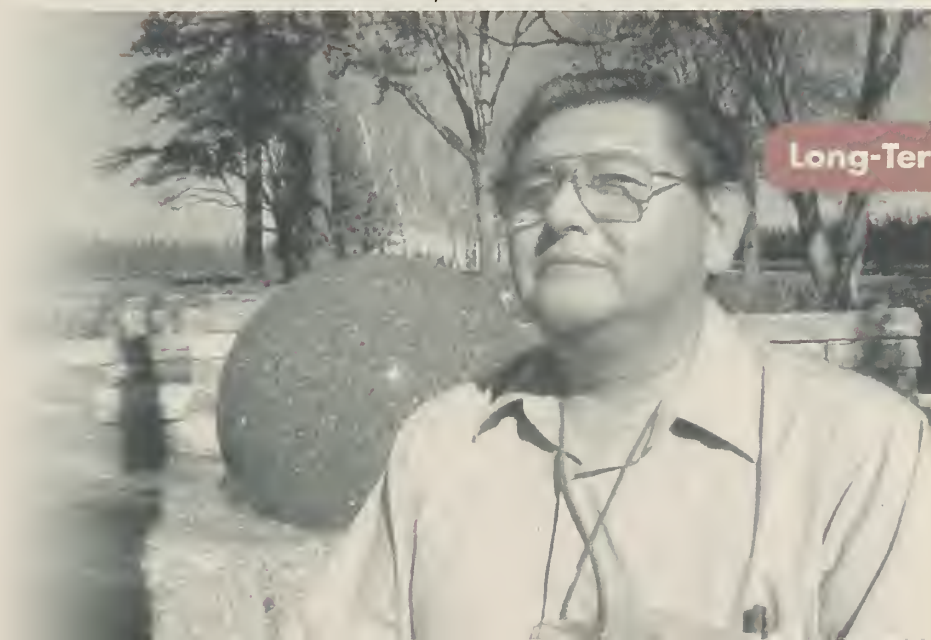
Outcomes

"All around us we see people with diabetes. We see parents, grandparents, children, and friends who have diabetes. Let's encourage people to make the right choices about what they eat, and how active they are. Let's help people make the right choices to avoid diabetes."

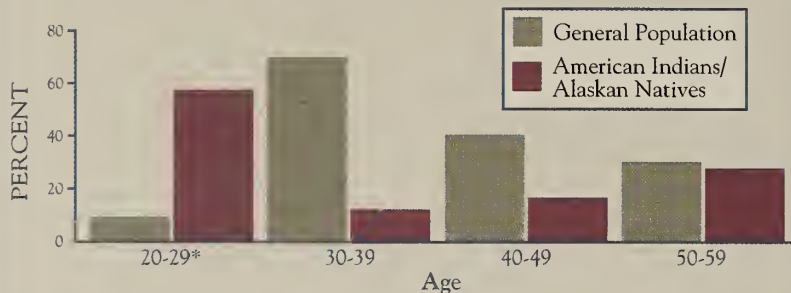
Albert Manual, Jr. (Tohono O'odham Nation)

The increase seen in this graph is, in part, due to improved screening and data collection efforts.

Long-Term Outcomes



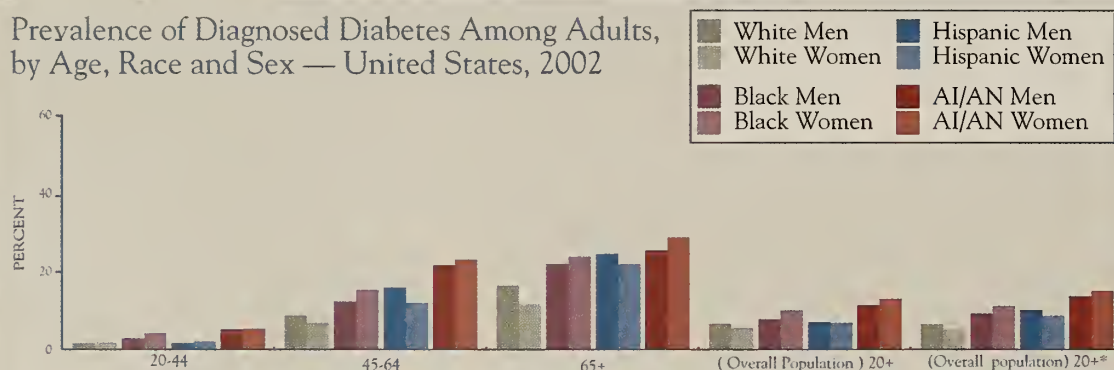
Increase in Diabetes Prevalence Among Persons Aged 20-59 Years, by Age – U.S. General Population and American Indians/Alaska Natives, 1990 and 1998



Source Mokdad et al. Diabetes Care 2000; 23: 1278-83, and Indian Health Service outpatient data.
*18-29 years in U.S. general population

The IHS can now more accurately measure the increase in prevalence of diabetes among AI/ANs by age group, and compared to the general population.

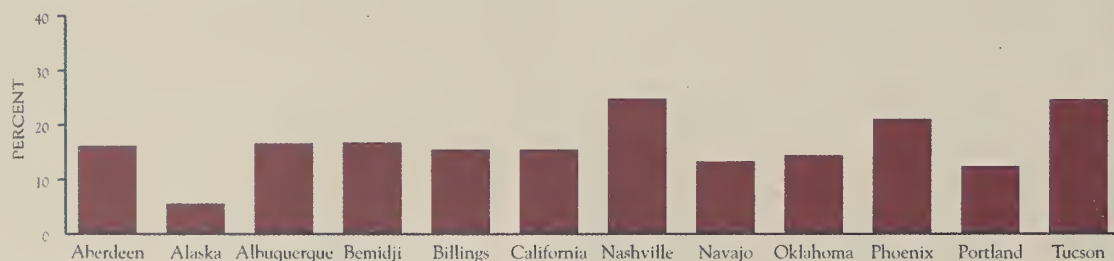
Prevalence of Diagnosed Diabetes Among Adults, by Age, Race and Sex — United States, 2002



Source 1997-1999 National Health Interview Survey (NHIS) and 2001 Indian Health Service outpatient database
*Age-adjusted based on the 2000 U.S. population

The IHS can now more accurately compare the prevalence of diabetes among AI/ANs to other racial and ethnic groups.

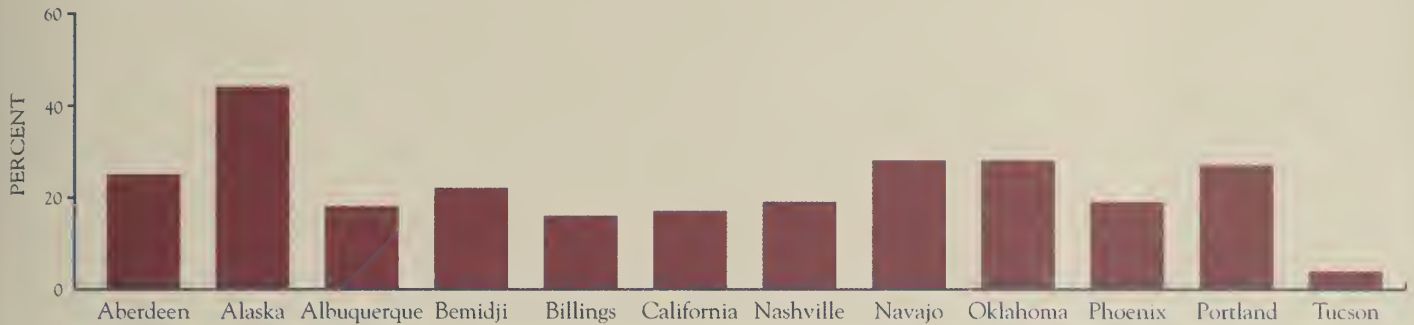
Age-Adjusted* Prevalence of Diagnosed Diabetes Among American Indians/Alaska Natives Aged 20 Years or Older, by IHS Area, 2002



Source FY01 IHS APC file. Excludes data from 39 service units (7% of the IHS user population) * Age-adjusted based on the 2000 U.S. population.

The IHS can now more accurately compare the prevalence of diabetes among AI/ANs by IHS Area.

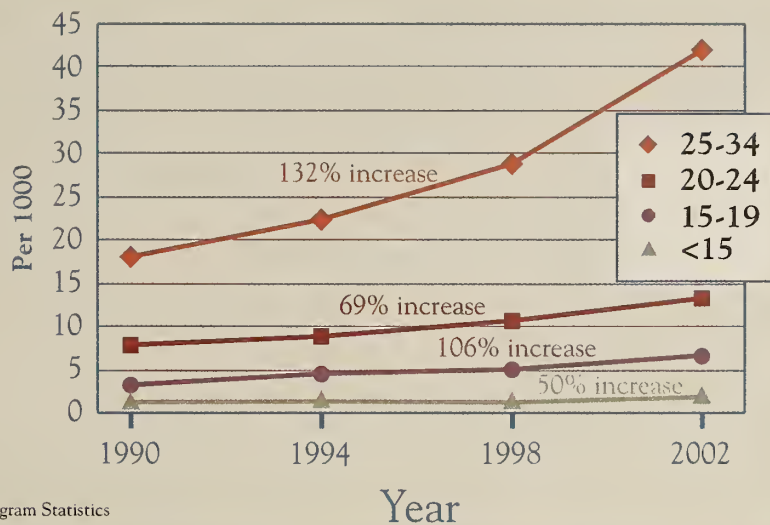
Increase in Age-Adjusted* Prevalence of Diagnosed Diabetes Among American Indians/Alaska Natives Aged 20 Years or Older, by IHS Area, 2002



Source FY98-01 IHS APC file. Excludes data from 39 service units (7% of the IHS user population) • Age-adjusted based on the 2000 U.S. population.

The IHS can now more accurately compare the *increase* in the prevalence of diabetes among AI/ANs by IHS Area during specific time periods.

Prevalence of Diagnosed Diabetes among Children & Young People by Age Group, 1990-2002



Source IHS National Diabetes Program Statistics

The IHS can now more accurately measure changes in the prevalence of diabetes among AI/AN youth.

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Long-Term Outcomes

Diabetes mortality: Accurate baseline data for ongoing measurement of diabetes mortality was established with implementation of the Special Diabetes Program for Indians.

Why is this important?

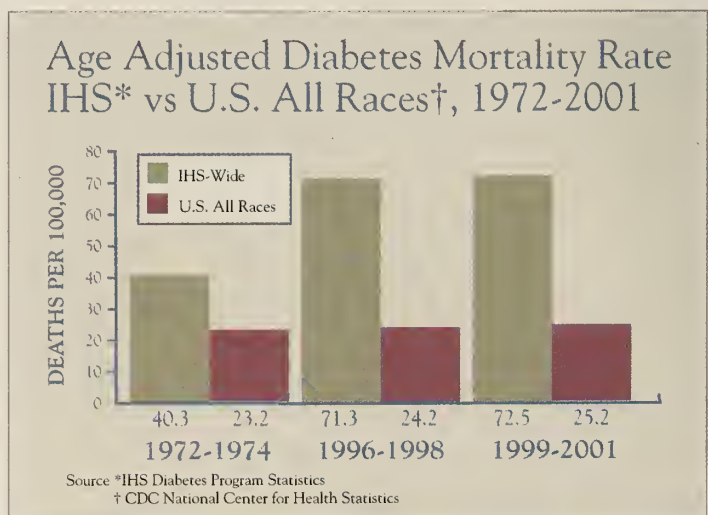
Diabetes-specific mortality approximates the risk of death from diabetes, and is an important indicator of health status. However, racial misidentification on death certificates has led to inaccurate AI/AN mortality data. This usually results in undercounting of AI/AN deaths which, in turn, results in lower than expected mortality rates.

The Special Diabetes Program for Indians allowed the IHS to improve mortality data by making more accurate adjustments for the undercounting of AI/AN racial identity and by better understanding the limitations of mortality data. As a result of this work, mortality estimates for AI/ANs are now considered more accurate.

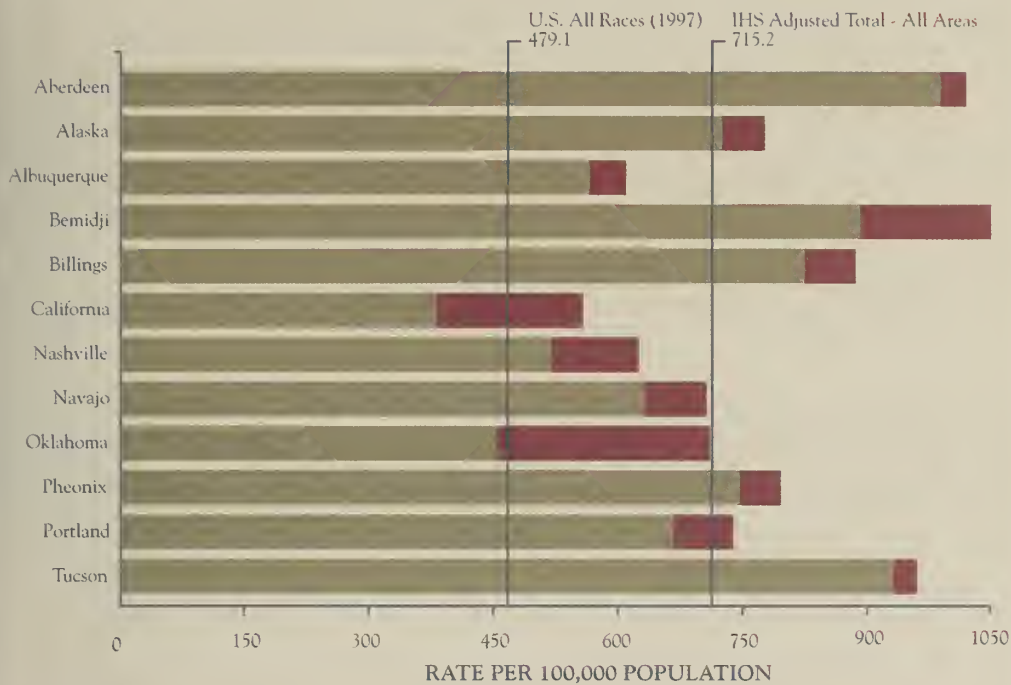
An accurate baseline for diabetes mortality has been established with implementation of the Special Diabetes Program for Indians. The IHS National Diabetes Program is now able to measure diabetes mortality in the following ways:

- Over time
- Compared with other races
- By IHS Area
- Adjusted for undercounting

The IHS can now more accurately measure diabetes mortality in AI/ANs over time and compared to other races.



Age-Adjusted Death Rates by IHS Area — CY 1996-1998



* Gray bars represent unadjusted totals. Colored bars represent totals adjusted for race misreporting

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The IHS can now more accurately measure mortality by IHS Area and can accurately adjust rates for undercounting on death certificates due to racial misidentification.

The IHS can now more accurately measure diabetes mortality in AI/ANs over time and compared to other races.

Long-Term Outcomes

The IHS National Diabetes Program has demonstrated that many processes and outcomes have improved through implementation of the Special Diabetes Program for Indians for diabetes prevention and treatment in AI/AN communities.

Summary

The IHS National Diabetes Program used accepted frameworks for public health evaluation and incorporated quantitative and qualitative methodologies to evaluate the short-term, intermediate, and long-term outcomes of the Special Diabetes Program for Indians. Through improvements made to diabetes data in each IHS Area and using the models and data sources described in this chapter, the IHS National Diabetes Program has demonstrated that many processes and outcomes have improved through implementation of the Special Diabetes Program for Indians for diabetes prevention and treatment in AI/AN communities.

The findings of the IHS National Diabetes Program evaluation for use of a best practices approach in the Special Diabetes Program for Indians are highlighted in the following chapter.



"I hope that our focus on diabetes prevention is permanent. Look around and see all the Indian children. We surely must be ready for them!"

Alvin Windy Boy (Chippewa Cree)

Chapter 5

BEST PRACTICES FROM THE SPECIAL DIABETES PROGRAM FOR INDIANS

In response to Congressional direction, the Indian Health Service (IHS) used supplemental funding from the Consolidated Appropriations Act of 2001 to implement a consensus-based, Indian health best practices approach. This approach allowed the IHS National Diabetes Program to build upon the successes of the diabetes grant programs established by the Balanced Budget Act of 1997.

To develop an Indian health best practices approach, the IHS National Diabetes Program convened a Best Practices Workgroup in February 2001. The Workgroup included experts from the IHS, tribes and tribal organizations, urban Indian organizations, the IHS Model Diabetes Programs, and project coordinators from Special Diabetes Program for Indians grant sites. The Workgroup based the models on findings from the latest diabetes scientific research and outcomes studies, as well as their own successful experiences. The Workgroup developed 14 best practice models for successful diabetes prevention, treatment, and education practices in American Indian and Alaska Native (AI/AN) communities.

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Best Practices

The Requests for Grant Application (RFAs) for FY 2001–2003 included a Best Practices section, which provided one-page summaries on each of the 14 Best Practice Models. Each summary provided information on the importance of the best practice topic, scientific evidence supporting the recommended best practice, measures to assess effectiveness, issues to consider when developing or modifying programs, and additional resources for each best practice topic.

Longer documents for each Best Practice topic were also developed. The longer documents include a more in-depth discussion of implementation of each Best Practice topic and applicable references for evidence-based recommendations. These long documents are found on the IHS National Diabetes Program web site. (www.ihs.gov/medicalprograms/diabetes)

Each year, when the diabetes grant programs applied for Special Diabetes Program for Indians funding, the Area Diabetes Consultants and Chief Medical Officers evaluated the diabetes grant programs on their use of the Best Practice Models. The IHS National Diabetes Program compiled the evaluation data to obtain information on the implementation of the Best Practice Models by the diabetes grant programs.

This chapter includes the one-page summaries for each of the 14 best practice models and an evaluation of their use by the diabetes grant programs.

Indian Health Diabetes Best Practice Models

This section provides one page outlines of the diabetes Best Practices Models. These best practices are based on the experiences of other Indian health diabetes programs and IHS Model Diabetes Programs, as well as on scientific research findings. The Best Practice Model outlines may help programs:

- Identify strengths in diabetes services and resources for their community.
- Find gaps in diabetes services or programs.
- Establish program priorities.
- Find best practice models that could work in their community.
- Begin a work plan to develop their local best practice models.

Here is a list of the 14 Best Practice Model topics that follow:

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| • Basic Diabetes Care and Education – A System Approach (p. 126) | • Kidney Disease – Screening, Prevention, Treatment, and Follow-up (p. 140) |
| • Diabetes Screening Programs (p. 128) | • Dental Care for People with Diabetes – Screening, Treatment, and Follow-up (p. 142) |
| • Community Advocacy – Winning Support for your Diabetes Program (p. 130) | • Pregnancy and Diabetes – Screening, Management, and Follow-up (p. 146) |
| • Medications for Diabetes Care (p. 132) | • Type 2 Diabetes in Youth – Prevention and Screening (p. 148) |
| • Cardiovascular Disease and Diabetes – Screening, Treatment, and Follow-up (p. 134) | • Diabetes Self-Management Education (p. 150) |
| • Eye Care for People with Diabetes – Screening, Treatment, and Follow-up (p. 136) | • Nutrition and Physical Fitness Programs for People with Diabetes (p. 152) |
| • Foot Care for People with Diabetes – Screening, Treatment, and Follow-up (p. 138) | • School Health – Physical Activity and Nutrition (p. 154) |

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Best Practice Model for American Indian/Alaska Native Communities: Basic Diabetes Care and Education – A Systems Approach

The Indian Health Best Practices Workgroup identified nine elements of quality diabetes care and education based upon scientific evidence and

recognized standards of care. Implementation or enhancement of these elements within diabetes programs may result in improved diabetes outcomes.

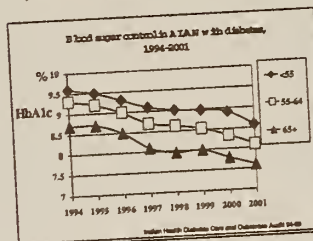
A review of Special Diabetes Program for Indians grant applications indicated that sixty three percent (63%) of grant programs used some or all of the best practice guidance for Basic Diabetes Care and Education - A Systems Approach to review, design, implement, and/or enhance case management, information management, the diabetes team, diabetes clinics and protocols, self-care management education, professional training, and resources of care for diabetes complications.

Indian Health Best Practice Model

Basic Diabetes Care and Education-A Systems Approach

Why is this important?

Indian health and national studies show that diabetes programs using a systems approach to diabetes care and education can make a difference! Indian health diabetes programs have helped define the elements that point to quality diabetes care and education systems within American Indian/Alaska Native communities. A systems approach includes case management, information management, diabetes team, diabetes clinics and protocols, self-care management education, professional training, and resources for care of diabetes complications. Programs looking to improve any part of the way they deliver care and education can use the systems approach.



What measures are used?

► The Diabetes Quality Improvement Project (DQIP) is a national diabetes performance and outcome measurement set. DQIP will help health care systems across the U.S. improve diabetes care.

► Indian Health Diabetes Care and Outcomes Audit is very similar to the DQIP measures. The graph shows a steady improvement in blood sugar control in Indian health patients with diabetes (lower HbA1c means better blood sugar control). Diabetes teams who improve systems of care will see positive outcomes.

Basic Diabetes Care and Education

- Assess your local diabetes care and education programs. What types and level of services are you providing? Does the diabetes team accept diabetes care and education standards?
- Does your clinic participate in the Diabetes Care and Outcomes Audit? How do the audit measures compare with the Indian Health trends, DQIP measures and Healthy People 2010 objectives? What system improvements can the diabetes team make?

You may find that your program wants to modify or create new systems of diabetes care and education. Here are some things to consider:

- What elements of medical care do you provide in your program? What kinds of diabetes care systems are in place? What systems would you like to modify or add?
- Do you have staffing for the services you would like to provide? Does your program use a team approach to care? Is training provided for team members on a regular basis?
- Assess your diabetes self-management education program. Does it follow a defined curriculum? Does it teach coping skills? Does it offer support groups?
- Consider using the *Integrated Diabetes Education and Clinical Standards for American Indian and Alaska Native Communities* to assess your local diabetes care and education programs. This document will help you assess your program according to levels and determine what is working and where improvements are needed. Certification is now available that allows your program to receive Medicare reimbursement for eligible patients.

One Tribe's Story:

Hualapai Tribe's Diabetes Prevention and Management Program is Widespread

The Hualapai Tribe in Northwest Arizona is fighting diabetes using a system that coordinates efforts between many tribal departments including the clinic, the diabetes program, youth program, WIC program, school and elders program. The tribal leaders, health care providers, diabetes program staff, teachers, parents, and children are involved. As a result, many of the tribe's 1700 tribal members living on the one-million acre reservation have received education for diabetes management and prevention. "I believe our program reaches everyone in the community," says Lorrain Bravo, Diabetes Coordinator.

The program's primary strength is its visibility within the community and establishment of trust by community members. The home visits, diabetes clinic, community health fair, 100 Mile Club, youth camp and annual diabetes conference together provide a program that is open and appropriate to all community members.

The tribe offers special activities including an Inter-Tribal Youth Wellness Camp, Youth Pow-wow and Community Health Fair. Tribal programs collaborate with each other to provide support of diabetes prevention education at events such as the Youth Wellness Winter and Spring Break Activities, the Sobriety Festival, and La Paz Run.

The Diabetes Program's primary successes are:

- 1) increased awareness of the extent of diabetes in the community and behavioral risk factors
- 2) creation of a "culture of wellness" such that community members are quick to register for events/activities that have a behavior change goal
- 3) provision of consistent social support for behavior change as demonstrated by participants in the 100 Mile Club, Senior Exercise and Weight Management Support Group
- 4) increased attendance at the weekly diabetes clinics by 45%.

With awareness markedly improved and a "culture of wellness" developing, the Hualapai community is ready for sustainable programs that support behavior change. The Diabetes Program uses the strengths of a small community, e.g. close social network, rapid information exchange and intra-personal familiarity, to support and reward changes in food and activity choices, which in turn promotes positive behavior changes throughout the entire community.

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Jorigine Bender and her sons have learned how to prevent or delay diabetes through programs at the Hualapai Tribe. Elwynn Havatone, left, and Frazier Havatone attend the tribe's summer youth camp where they get blood sugars tested before and after camp. After three days of exercise and healthy eating, their blood sugars drop. Jorigine volunteers at the camp and attends other diabetes prevention activities including Family Fitness Day. Jorigine says the diabetes prevention education is working. "I try not to serve fatty foods in my home. My sons are eating less candy and drinking less pop," she says.



Best Practice Model for American Indian/Alaska Native Communities: Diabetes Screening Programs

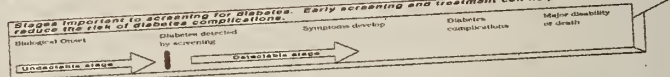
Screening activities are important to identify individuals with diabetes before complications develop as well as people who are at-risk for developing diabetes. Screening programs also serve to link at-risk individuals with promising intervention programs within their communities.

A review of Special Diabetes Program for Indians grant applications indicated that sixty four percent (64%) of grant programs used some or all of the best practice guidance for Diabetes Screening Programs to design and implement diabetes screening activities in their communities.

Indian Health Best Practice Model Diabetes Screening Programs

Why is this important?

Type 2 diabetes has reached epidemic proportions in American Indian and Alaska Native (AI/AN) communities. AI/AN have nearly three times greater chance of dying from diabetes and its complications than non-Hispanic whites. Yet, many people with diabetes, about 33% according to national estimates, remain undiagnosed. Blood vessel damage from high blood sugar can begin before diabetes is diagnosed, leading to early problems with the eyes, nerves, kidneys, and heart.



What do we know?

- Major risk factors for type 2 diabetes such as a family history of diabetes, obesity, impaired glucose tolerance, and a history of gestational diabetes are well known, and the criteria for diagnosis of diabetes are established.
- A large clinical study, the Diabetes Prevention Program (DPP), was ended a year early in July 2001. The purpose of this study was to find out if people at high risk for type 2 diabetes with a condition known as prediabetes could decrease or delay the onset of diabetes through lifestyle changes and/or use of medicine. Participants who made lifestyle changes reduced their risk of getting type 2 diabetes by 58%. Those on metformin, a medicine used to treat diabetes, reduced their risk of getting type 2 diabetes by 31%.
- A recent study in Finland also showed that healthy lifestyles changes reduced the chance of getting type 2 diabetes by 58%.
- The Healthy People 2010 objective advises that 80 percent of adults aged 20 years and older are screened for diabetes.

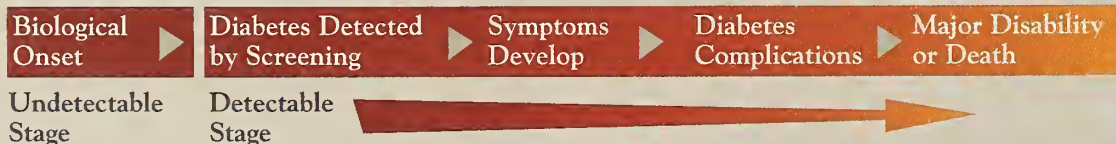
Diabetes screening in your community

- Find out the kinds of screening programs and methods operating in your community.
- Can you make any improvements?
- Do your screening programs include diabetes awareness and education?

Your program may want to develop or improve a diabetes-screening program. Here are some things to consider:

- Find out acceptable methods and approaches for screening in your community. Work with your tribal administration and health care providers to set up appropriate screening programs.
- Screening for pre-diabetes in your community may best be done through the use of a risk assessment questionnaire, prior to subjecting your patients to blood testing.
- Facilitate and ensure access to screening services.
- Provide education to your community about the symptoms of and risk factors for diabetes and the importance of early diagnosis. Involve community leaders in the process.
- Develop a system for tracking and providing follow-up for people with abnormal screening results or with one or more risk factors for diabetes.
- Develop a complete program including screening for diabetes, and screening for other factors that contribute to diabetes complications (lipids, blood pressure, foot exams, etc.).

Stages Important to screening for diabetes. Early screening and treatment can help reduce the risk of diabetes complications



One Tribe's Story:

Leech Lake Tribe Increases Number of People Being Screened for Diabetes

The Leech Lake Diabetes Program takes advantage of established gathering places to offer diabetes screenings and education. During the first three years of the grant, the tribe screened 874 people at 45 community events. One hundred and four referrals were made. Health staff screened people at community powwows, the tribal diabetes center, the fitness center, the PHS Hospital, schools, worksites, the tribal casino and at special events.

The Leech Lake Fitness Center is one place the tribe offers diabetes screenings. Many

people visit the Center, not only because of the fitness opportunities, but because it has become a popular meeting place for community members. People drop in to chat, have coffee, get their blood pressures and blood sugars checked, and work out on the fitness equipment.

The two fitness staff help clients feel relaxed and welcomed. The outgoing attitudes of Fitness Center staff have brought more people in, and kept people coming back, resulting in more screenings and more frequent blood sugar checks.

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Fitness Center Staff Becky Pennington (Red Lake Ojibwe) and Richard Beaulieu (White Earth Ojibwe) share a laugh after checking blood sugar. The atmosphere of the Fitness Center is a main reason people keep coming back.

Best Practice Model for American Indian/Alaska Native Communities: Community Advocacy – Winning Support for Your Diabetes Program

Community support is important for the successful implementation and development of the diabetes grant program activities.

A review of Special Diabetes Program for Indians grant applications indicated that **forty percent (40%) of the grant programs used some or all of the best practice guidance for Community Advocacy – Winning Support for Your Diabetes Program** to engage tribal and spiritual leaders, tribal healers, people with diabetes, community members, and other partners to help plan, develop, and implement diabetes program activities in their communities.

Indian Health Best Practice Model

Community Advocacy -Winning Support for Your Diabetes Program

Why is this important?

Community support is vital for your program success. Involving tribal leaders, elders, religious or traditional leaders, people with diabetes, youth leaders, community health representatives (CHRs) and other community advocates is the best way to gain support. Community members who are involved as partners, advocates or participants in activities can help listen, influence, identify gaps, and find solutions to the many challenges in diabetes care. They can also help blend traditional or local ways of sharing information and learning with current science and medical knowledge. Honoring traditions and local knowledge can help protect and promote health for the entire community.



"Education is the biggest part of dealing with diabetes. Getting the people to understand and it's their own native people that are going to have to educate us. If somebody comes from off the reservation I guess they don't take them seriously."

Lawrence Bedeau, Red Lake Band of Chippewa, 55 years old, diagnosed with diabetes in 1974

What can you do?

Work with community members to help create and fine tune diabetes program activities.

- ▶ Encourage, train and use community members to lead diabetes program activities.
- ▶ Community members can lead support groups, organize screening programs, teach cooking classes, help with home visits and increase community awareness for diabetes prevention and treatment.
- ▶ Create partnerships with other health care programs in your community.

Your community

- ▶ What efforts has your community made to support lifestyle change?
- ▶ Do you plan activities according to seasons or events important to the people in your community?
- ▶ How is your program developing and supporting leadership within the community?
- ▶ What special efforts has your program made to help people learn in the way they are most comfortable with?

You can involve your community in many ways. Here are some things to consider:

- ▶ Listen to your community. What does your community want? Ask how to involve people, programs or leadership in program planning, developing, and implementation. Invite participation from all levels in your community.
- ▶ Involve your tribal health advisory system and other tribal health programs (Head Start, WIC, School health, Elder, Youth, etc). Create diabetes prevention and care programs that are complementary not competitive.
- ▶ Find ways to share information with the community as your program progresses.
- ▶ Consider developing a diabetes advocate program to help support and sustain your community linkages. Adopt or modify diabetes advocate models known to work.
- ▶ Consider partnerships with tribal colleges or other education systems in your region. They can help educate and train youth, advocates and other community members.



"Education is the biggest part of dealing with diabetes. Getting the people to understand, and it's their own native people that are going to have to educate us. If somebody comes from off the reservation I guess they don't take them seriously."

Lawrence Bedeau (Red Lake Band of Chippewa), 55 years old, diagnosed with diabetes in 1974

One Tribe's Story:

Community Volunteers are Reason for Program's Success

In 1987, the Zuni Wellness Program offered two 1-hour aerobics classes. Its staff was made up of only one person. Her office, located in a corner of an old elementary school, was furnished simply with a wooden desk and chair.

Today the Zuni Wellness Program has several employees and sponsors 30 aerobic classes; weight lifting circuit training; cardiovascular cross-training; an annual Holiday Eating Learning Program; a summer running, bicycling, and walking fitness series; and other community-wide fitness events. Youth through elders participate. Over 1,000 people visit the Wellness Center each month, and over 1,000 people participate in the wellness series events.

How did the program grow so much? Leatrice Lewis, the former Wellness Center Program Manager, said, "Community involvement in leading and supporting the programs is key."

Over 1,000 people visit the Wellness Center each month, and over 1,000 people participate in the wellness series events.

In addition to the regular Wellness Program staff, a group of 13 community volunteers called the "Z-Fit Team" lead fitness and health promotion activities in the center and around the community. The volunteers are

true volunteers: They are not paid. Their reimbursement for volunteer hours is free fitness training and certification, and better health.

Loretta Beyuka is a volunteer Certified Aerobics Instructor who received her certification through the program.

She volunteers to teach aerobics to elementary students. She says being a fitness volunteer introduced her to regular physical activity, which is something she now does almost every day. "I am becoming an aerobics fanatic," she said.

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Loretta Beyuka (Zuni) is a volunteer certified aerobics instructor for the Zuni Pueblo. The process of getting certified, plus regularly teaching aerobics classes has made physical activity a habit. "I am becoming an aerobics fanatic," she says.



Best Practice Model for American Indian/Alaska Native Communities: Medications for Diabetes Care

To provide quality diabetes care, health care providers must have access to effective medications for their patients with diabetes, including blood sugar lowering, blood pressure lowering, and lipid lowering medications.

A review of Special Diabetes Program for Indians grant applications indicated that twenty four percent (24%) of grant programs used some or all of the best practice guidance for Medications for Diabetes Care to purchase newer, more effective drugs for the management of diabetes and its complications, to educate patients more effectively on medication regimens, and to update clinical staff on the prescription of newer medications for diabetes care.

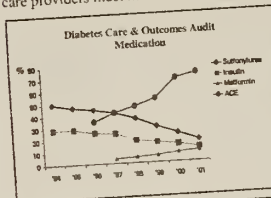
Indian Health Best Practice Model Medications for Diabetes Care

Why is this important?

Most people with diabetes need medicines to lower blood sugar and prevent diabetes complications. In recent years, a number of new, more effective, drugs have been developed for type 2 diabetes. These drugs act in different ways to lower blood sugar and improve insulin usage. New drugs to control blood pressure and blood lipids are also available to help reduce the risk for heart and kidney disease. Unfortunately, the cost of these drugs may inhibit their widespread use in American Indian/Alaska Native communities with large numbers of people who have diabetes. Indian health pharmacy budgets remain flat line while drug costs increased 25% last year alone. To provide quality diabetes care, health care providers must have access to the necessary tools, including effective medicines.

What measures are used?

- The Indian Health Diabetes Care and Outcomes Audit measures the number of people using medicine for blood sugar control and to protect their kidneys. The graph shows the trends in medicine use.
- The average cost of drugs for one person with diabetes is about \$2,000 per year. These are drugs used to lower blood sugar, blood pressure and blood lipids and to protect kidney function. Other drugs for heart, mental health or other problems are not included.



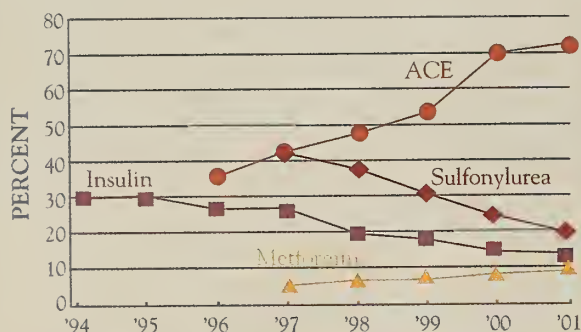
How does your program compare?

- Find out your clinic's current budget for diabetes related drugs. Is it enough?
- Is your health care team limiting the use of certain drugs due to high cost?
- Look at your audit trends, would the outcomes be better if other medicines were available?

Contributing grant funds to the pharmacy budget may help with diabetes care in your community. Here are some issues you may want to consider:

- How much does your program spend on diabetes medicines per person, per year? If you had more funds, would more people receive needed medicines? Would more funds impact the availability of medication?
- Is your present pharmacy program meeting the needs of your community? Are all people with diabetes who need blood pressure or lipid lowering drugs receiving them? How would more funds affect these needs?
- Are the new drugs for type 2 diabetes available in your pharmacy?
- Are people with diabetes receiving adequate education/information on how to take their medicines?
- Is your clinic staff, including physicians and pharmacists, up-to-date on new medicines and how to prescribe them?

Diabetes Care & Outcomes Audit Medication



Making the case for medication: A nurses story

Melissa Marks (Yankton Sioux/Seminole), LPN is a Diabetic Nurse and intimately knows the importance of taking medications. Her value on the BRAID (Becoming Responsible American Indians with Diabetes) team at OKCIC (Oklahoma City Indian Clinic) goes far beyond her training and education. Her life training began with her parents', grandparents', and sister's personal experiences. In 1990, Melissa was diagnosed.

Melissa's patients receive the benefit of her personal experience. She knows first-hand what it's like to not take medication. "When I was first diagnosed, I took my medication. Soon my blood sugar returned to normal. I began to feel better, so I thought maybe they made a mistake, and I wasn't really diabetic," recalls Melissa. "But soon after I stopped taking it, my symptoms came back." Melissa feels that everyone goes through a period of denial when first diagnosed.

With diabetes education and clinical support, Melissa learned why and how to take her medication and control her diabetes. She wishes that the opportunity for diabetes education existed for her grandparents and parents. "Because of a lack of education back then, my family members had to endure devastating complications like amputations and dialysis." She strongly encourages all newly-diagnosed patients to attend diabetes education classes. "They need the education to learn how they can prevent damage to their bodies with medication. Usually the ones who aren't taking their medication aren't going to the classes."

Melissa believes learning about the value of medication is critical. "One of the real

challenges is that by the time some people are diagnosed, their bodies have adjusted to the symptoms of high blood sugar. They may not even recognize the symptoms because to them they feel normal."

Another challenge is to get patients to keep taking their medication, even when their blood sugar seems to be in control. She says it's important that patients realize they must take their medication every day, no matter how they feel, to help avoid the complications that affected her family. Melissa's job at OKCIC gives her a opportunity to spread this critical message. "I want patients to take their medication every day, the way the doctor has prescribed it. This is my goal."

Melissa feels that with all the diabetes education opportunities being offered today, everyone has a chance to get their diabetes under control. Her personal self-care includes taking her medication regularly and walking on her lunch hour. "We didn't choose to have diabetes, but we can choose to be responsible and take care of ourselves."

Melissa feels fortunate to be a member of the BRAID team, and is especially proud that every team member knows every diabetes patient. This familiarity allows the team to create personalized health-care plans for each patient. She is looking forward to getting her RN and continuing to share her expertise, her experience and hope with Indian people with diabetes.



The BRAID Team of the Oklahoma Clinic emphasizes having each team member know every diabetes patient. This allows the multidisciplinary team to provide comprehensive personalized health care plans for every patient, including prescribing and making changes in medication to best combat diabetes complications.

CHAPTER FIVE

Best Practices

Best Practice Model for American Indian/Alaska Native Communities: Cardiovascular Disease and Diabetes – Screening, Treatment, and Follow-Up

People with diabetes have a 2 to 4 times higher risk for heart disease compared to people without diabetes, and they are more likely to die after a first

heart attack. Programs designed to address cardiovascular risk factors in people with diabetes may lead to reductions in the number of deaths due to cardiovascular disease.

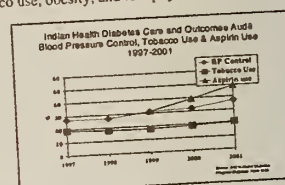
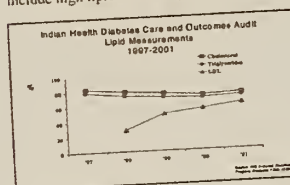
A review of Special Diabetes Program for Indians grant applications indicated that seventeen percent (17%) of grant programs used some or all of the best practice guidance for Cardiovascular Disease and Diabetes – Screening, Treatment and Follow-up to design and implement programs to screen and treat people with diabetes for their risk for cardiovascular disease. These programs included lifestyle counseling and education programs, as well as systems of care for high lipid levels, high blood pressure, low dose aspirin use, and tobacco cessation.

Indian Health Best Practice Model

Cardiovascular Disease and Diabetes—Screening, Treatment & Follow-up

Why is this important?

People with diabetes are at 2 to 4 times higher risk for heart disease compared to people without diabetes. They also are more likely to die after a first heart attack. Cardiovascular disease (CVD) is the leading cause of death in American Indians and Alaska Natives over age 55. Risk factors for CVD include high lipid levels, high blood pressure, tobacco use, obesity, and low physical activity.



What measures are used?

- ▶ The Indian Health Diabetes Care and Outcomes Audit measures total cholesterol, LDL, triglycerides, blood pressure (BP), tobacco use and recommendation or referral for tobacco counseling; use of low-dose aspirin; and baseline ECG. The graphs show the reported trends in CVD risk factor measurements, for Indian health clinics that report data.
- ▶ The Healthy People 2010 objective calls for a 10 percent reduction in cardiovascular deaths in people with diabetes.

How does your program compare?

- ▶ Find out your clinic audit results for CVD risk factors in people with diabetes.
- ▶ What percentage of people with diabetes have their lipid numbers in the target range?
- ▶ What percentage have their blood pressure in the target range?
- ▶ What percentage use tobacco?
- ▶ How many take low dose aspirin?

Your grant program may want to develop a CVD risk screening and treatment program. Here are some things to consider:

- ▶ Assess local diabetes care for CVD screening and treatment services. Are there unmet needs?
- ▶ Identify ways to reach your target populations for assessment and treatment.
- ▶ Develop lifestyle, counseling and education programs to lower CVD risk.
- ▶ Develop a system of care that includes screening, treatment and follow-up services for CVD risk factors (i.e., lipids, blood sugar, blood pressure, and tobacco use).
- ▶ Include lifestyle change (nutrition, physical activity, tobacco cessation) programs.
- ▶ Promote a team approach in your clinic that involves primary care providers and allied health care staff such as pharmacists, nutritionists, health educators and physical therapists.

She Spreads the Word of the Danger of Smoking

If you are a smoker and visit the Sonoma County Indian Health Clinic, be prepared to be reprimanded. Whenever Bernadine Piceno, a member of the Pomo Tribe, sees someone smoking outside the clinic, she speaks frankly. "Smoking is bad for you!" she says, using a not-so-soft voice.

Bernadine has diabetes. Diabetes educators at the clinic informed her of her risk of heart disease because of diabetes and smoking. But, it wasn't until her first dialysis session that she took the clinic staff warnings seriously. "I wasn't afraid when I went in, even when they

put the graft in," she recalls. "Then suddenly I thought, 'Oh my gosh! What have I gotten myself into!'"

Bernadine immediately changed what she ate and quit smoking. She knew that not smoking would help her stay healthier while on dialysis. After two and a half years of dialysis, she received a kidney transplant. Now, Bernadine feels wonderful. She does not smoke, continues to eat healthy foods, and walks regularly. She knows that not smoking will help her avoid heart disease. "I plan to see my fourteen grandchildren grow up," she says.

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Bernadine Piceno (Pomo)
quit smoking to stay
healthier while on dialysis.
She received a kidney
transplant and feels great.



Best Practice Model for American Indian/Alaska Native Communities: Eye Care for People with Diabetes – Screening, Treatment, and Follow-up

Dilated eye exams are important screening opportunities for finding diabetic eye disease in early stages when it is often more amenable to treatment. Laser

treatment of high-risk diabetic eye disease greatly reduces the risk for serious vision loss.

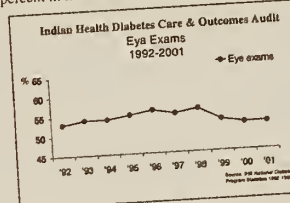
A review of Special Diabetes Program for Indians grant applications indicated that thirty five percent (35%) of grant programs used some or all of the best practice guidance for Eye Care for People with Diabetes – Screening, Treatment, and Follow-up to design and implement screening and treatment programs for diabetic eye disease, systems for monitoring and tracking individuals with diabetic eye disease, and patient education programs regarding the need for yearly eye exams.

Indian Health Best Practice Model

Eye Care for People with Diabetes – Screening, Treatment, and Follow-Up

Why is this important?

Diabetic eye disease (retinopathy) is the leading cause of adult blindness in the U.S. Damage to the eyes can begin even before diabetes is diagnosed. All people with type 2 diabetes should receive a dilated eye exam at diagnosis and every year thereafter. Yearly dilated eye exams need to be done by an ophthalmologist, optometrist or specially trained technician. This annual exam screens for retinopathy. Without treatment, people with diabetes who have eye disease have a 50 percent chance of blindness in 5 years. With laser treatment, the chance of serious vision loss is reduced to less than 2 percent in these same people with high-risk diabetic eye disease.



What measures are used?

- The Indian Health Diabetes Care and Outcomes Audit measures the number of people with a documented dilated eye exam or fundus photograph within the past year. The graph shows the reported trends in yearly-dilated eye exams for all Indian health clinics that report audit data.
- The Healthy People 2010 objective advises that at least 75 percent of people with diabetes receive a yearly-dilated eye exam.

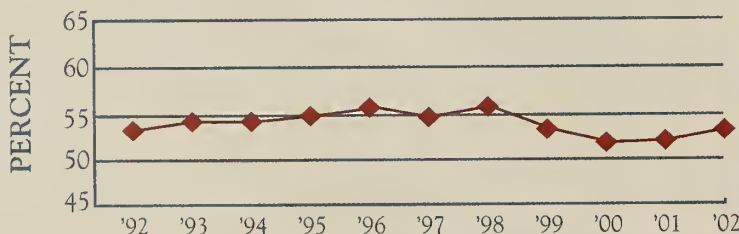
How does your program compare?

- How do your numbers clinic audit results for eye exams during the last few years?
- Find out your numbers in here: _____ % FY97 _____ % FY98 _____ % FY99 _____ % FY2000 _____ % FY2001
- How do your numbers compare to the Indian health trends?
- How do your numbers compare to the Healthy People 2010 objective?

If your numbers are low, your diabetes grant program may want to develop an eye care program. Here are some things to consider:

- Assess your local eye care program for people with diabetes. Are there unmet needs?
- Identify ways to increase the number of dilated eye exams. (media, eyeglasses, off site screening, telemedicine, etc.)
- Ensure easy access to eye exams, including staffing, space, equipment, or off-site facilities for community-based screening.
- Provide education to people with diabetes and their families about the need for yearly eye exams.
- Provide timely treatment of eye disease including laser therapy, corrective eyeglasses, and other treatments if needed.
- Establish and maintain tracking and monitoring programs for people with diabetes to help track diabetes care and treatment needs.

Diabetes Care & Outcomes Audit: Eye Exams 1992-2001



Indian Health Diabetes Care and Outcomes Audit 92-01

Grand Rhonde Member Knows Good Vision is Key to Driving Logging Trucks

Bob Mercier, a member of the Grand Rhonde Tribe, values his eyesight. He has grandchildren he wants to see grow up. He lives in a lush part of the country, near coastal Oregon, and finds peace in the scenery of tall Douglas Firs, cedars and dense underbrush. He enjoys the sights of the country-side from high up in the cab of one of his three logging trucks. Bob runs a logging truck business, and knows that one of the main keys to its continued operation is his good eyesight.

Bob was diagnosed with diabetes in 1982, and started his business two years later. At the same time he was learning what it took to get his commercial drivers license, he was learning what he needed to do to keep his good eyesight despite having diabetes.

Health providers at his tribal clinic referred him to a diabetes education class. Bob learned that good blood sugar control and regular eye

checks would help him stay healthy, feel better and keep his eyesight. "I learned that I could do well with a healthy diet, regular exercise and taking insulin," he recalls.

He paid particular attention to eye care. "I get my eyes checked two times a year," he says. Bob attributes the regular eye checks to his ability to see clearly today. The dilated eye exams discovered leakage in the back of Bob's eyes, and surgery was scheduled. The leakage was found in its early stages, before serious damage was done.

"I've learned that if you don't keep up on everything, like the eyes, then you could be in trouble. These things could get away from you," he says.

Bob sometimes works 12-hours days, driving a truck loaded with fir logs, overseeing the loading and unloading. He says he loves his work and is happy that he will be able to continue for many years.

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"I've learned that if you don't keep up on everything, like your feet and eyes, then you're in trouble because it can get away from you. I get my eyes checked twice a year. I've had laser surgery twice."

Bob Mercier (Grand Ronde Tribe)



Best Practice Model for American Indian/Alaska Native Communities: Foot Care for People with Diabetes – Screening, Treatment, and Follow-up

Lower extremity amputations are a serious complication of diabetes in American Indian/Alaska Native communities. Up to 75% of amputations can be prevented through appropriate screening and management of the risk factors for foot ulcers and amputations. Yearly complete foot exams are recommended to screen for and treat these risk factors.

A review of Special Diabetes Program for Indians grant applications indicated that fifty seven percent (57%) of grant programs used some or all of the best practice guidance for Foot Care for People with Diabetes – Screening, Treatment, and Follow-up to design and implement foot care programs for their communities.

Indian Health Best Practice Model

Foot Care for People with Diabetes – Screening, Treatment, and Follow-up

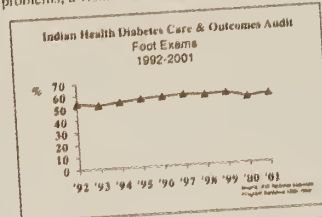
Why is this important?

Lower-extremity amputations are a major cause of morbidity and mortality for people with diabetes, especially in American Indian and Alaska Native communities. Most amputations result from problems with foot ulcers. We can prevent amputations by screening and managing the risk factors for foot ulcers. All people with diabetes should receive a complete foot exam at least once a year to identify high-risk foot problems. A complete foot exam includes recording any history of foot problems, a visual check, testing for nerve problems and blood vessel problems.

What measures are used?

► The Indian Health Diabetes Care and Outcomes Audit measures the number of people with a complete foot exam within the past year (includes assessment of nerve and blood vessel status). The graph shows the reported trends in yearly foot exams for all Indian health clinics that report audit data.

► The Healthy People 2010 objective advises that 75 percent of people with diabetes receive a complete foot exam each year.



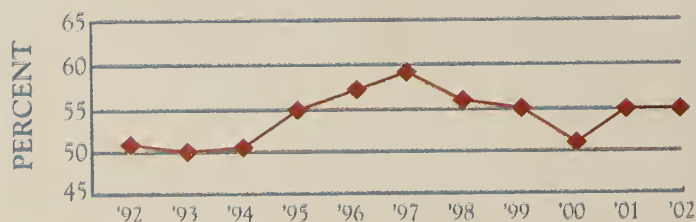
How does your program compare?

- Find out your clinic audit results for foot exams during the last few years.
- Write those numbers in here: _____ % FY97 _____ % FY98 _____ % FY99
_____ % FY2000 _____ % FY2001
- How do your numbers compare to the Indian health trends?
- How do your numbers compare to the Healthy People 2010 objective?

If your numbers are low, your diabetes grant program may want to develop a foot care program. Here are some things to consider:

- Assess your local foot care programs for people with diabetes. Are there unmet needs?
- Identify ways to reach your target populations to increase the number of foot exams.
- Provide education on the importance of daily foot care, preventing minor foot trauma, shoe selection and use, and reporting any foot problems.
- Develop a comprehensive foot care program that includes screening and risk assessment, preventive care, wound management and follow-up.
- Provide staffing and training for foot care programs, including CHRs, primary care providers, nurse educators, podiatrists, wound care specialists, and podiatrists.
- Promote case management and treatment of other health conditions such as high blood sugar, tobacco cessation programs and blood vessel disorders.

Foot Exams 1992-2001



One Tribe's Story:

Comprehensive Foot Care Clinic Reduces Wounds and Amputations at Red Lake, Minnesota

Before the Red Lake Health Clinic started its comprehensive foot care program, Henrietta Norris wasn't sure how to take care of her feet. When she found calluses on her feet, she would try to cut them off with a knife. And, she had problems trimming her toenails. "I tried to cut my toenail, and I cut my toe," she recalls.

Now, the Ojibwe elder visits the foot care clinic at the Red Lake Clinic once every month. She gets her toenails trimmed, and a nurse examines her feet. The clinic gives Henrietta supportive shoes and inserts which have resulted in fewer calluses. But if Henrietta develops one, the foot care nurse carefully removes it. Henrietta has learned that foot problems need immediate attention. "If I have a problem in between appointments, like an ingrown toenail, I go to the clinic," she says.

Henrietta is one of many Red Lake Ojibwe reservation members participating in a comprehensive foot care program which includes a foot care team and detailed tracking systems for patient follow-up. The foot care program offers palliative foot care and wound care. A specially trained nurse staffs the Red Lake clinic two days each week and the satellite clinics monthly. Over 50 clients are seen monthly. A footwear clinic is held monthly, staffed by a certified orthotist.

As a result of the foot care program, 84% of diabetes patients have received foot exams. Amputations at the Red Lake Reservation have decreased from fifteen per thousand to six per thousand in one year.

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Henrietta Norris (Ojibwe) gets her feet checked at the Red Lake Health Clinic. Amputations at the tribe located in northern Minnesota have decreased since the foot care program began. Because of more thorough foot care education, including an emphasis on regular foot checks, patients like Henrietta are able to get treatment to heal foot wounds before they become serious. "If I have a problem like an ingrown toenail, I go to the clinic," she says.



Best Practice Model for American Indian/Alaska Native Communities: Kidney Disease – Screening, Treatment, and Follow-up

Early intervention in patients with chronic kidney disease can slow the progression of the disease to kidney failure. Early treatment can also improve the

quality of life of people who eventually progress to end-stage kidney disease and need dialysis or transplantation.

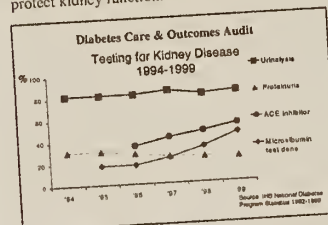
A review of Special Diabetes Program for Indians grant applications indicated that eighteen percent (18%) of grant programs used some or all of the best practice guidance for Kidney Disease – Screening, Prevention, Treatment, and Follow-up to design and implement kidney care programs in their communities.

Indian Health Best Practice Model

Kidney Disease – Screening, Prevention, Treatment and Follow-up

Why is this important?

Diabetes is the most common single cause of kidney failure in the U.S. The presence of protein in the urine marks the beginning of kidney damage that progresses over time. People with diabetes need yearly urine and blood tests to screen for early kidney disease. Improving blood sugar control, using aggressive treatment to control high blood pressure, and using medicines called ACE inhibitors can protect kidney function.



What measures are used?

► The Indian Health Diabetes Care and Outcomes Audit measures screening for protein in the urine (urinalysis & micro albumin tests). The audit measures the percentage of people with diabetes who have protein in the urine (≥ 300 mg/dl), and the percentage of people with diabetes being treated with ACE inhibitors. The graph shows the reported trends in testing for kidney disease, for all Indian health clinics reporting audit data.

► The Healthy People 2010 objective is to increase the number of people with diabetes who obtain an annual urine test for micro albumin (small amounts of protein in urine).

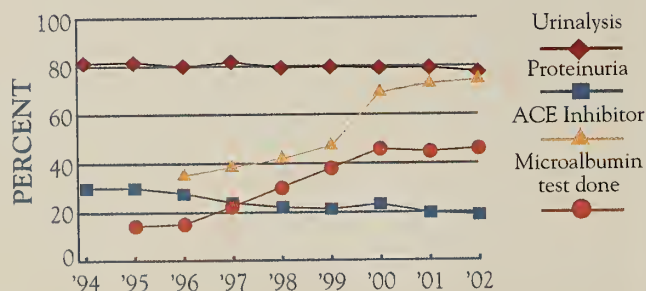
How does your program compare?

- Find out your clinic audit results for kidney disease screening during the last few years.
- Write those numbers in here: ____ %FY97 ____ %FY98 ____ %FY99 ____ %FY2000 ____ %FY2001
- How do your numbers compare to the Indian health trends?
- How do your numbers compare to the Healthy People 2010 objective?

If your numbers are low, your diabetes grant program may want to develop a diabetes kidney program. Here are some things to consider:

- Assess your local kidney screening programs. Are there unmet needs?
- Identify ways to reach your target populations for annual screening for kidney disease
- Educate people with diabetes and their families about the need for blood pressure control including lifestyle modifications and medications to control blood pressure.
- Implement a "staged kidney management" approach in your clinic, with protocols for education, interventions and management at each stage. The National Kidney Foundation as the Kidney Disease Outcomes Quality Initiative is developing standards of care for chronic kidney disease.
- Provide training in kidney disease screening, treatment and follow-up to all members of the team.
- Promote case management and treatment of other conditions that affect kidney health such as high blood pressure and high blood sugar.

Testing for Kidney Disease 1994-1999



One Tribe's Story: New Type of Kidney Clinic Offers a Human Touch

At the Eastern Band of Cherokee Indians, new ways of offering kidney clinics are big hits. Once a month, a group of people with diabetes goes to the kidney clinic. They spend the day together – as a group, as friends.

This new way of providing kidney clinics is popular because it meets many needs – especially the need for a human touch. “I look forward to the clinic. We talk,” says Phyllis Martinez (Eastern Band of Cherokee Indians). “We cry if we have to,” adds Edith Crow (Eastern Band of Cherokee Indians). Talk, laugh, cry. These are the ingredients that are making new clinics successful.

The Cherokee Kidney Clinic is a group clinic. Once a month people spend the day together at the Cherokee Hospital. They meet in a large room, enjoying coffee and snacks. They chat with health care staff, and take turns seeing a doctor. Throughout the day, they learn more about how to take care of their kidneys – how to eat low-protein food, and limit how much water they drink.

They also learn about dialysis options. Over the course of several visits, the mystery of dialysis diminishes. They begin to understand that they have choices. If the time comes for them to go on dialysis, they know exactly what to expect. It isn't as mysterious. It isn't as scary.

“Before the group clinic, there was only a video to explain what dialysis was,” says

Edith. “This group clinic has helped us feel better about what we can expect. It has helped us feel better about our emotions. This group has helped us know that our feelings are shared by others.”

Many say that before the group clinic, they felt scared and alone. One of the best things about the clinic is that people get to know each other. They tell stories of their children and grandchildren. They talk about how they met their spouse. One man, Alfred West, Jr. (Eastern Band of Cherokee Indians), makes sure he wears his rooster watch to every clinic, to liven things up. It crows every hour.

Group members have become friends. They call each other, and check up on each other. They talk about diabetes, taking medication, giving insulin shots, and maybe going on dialysis. “I used to be scared. But, after talking about all this, I calmed down,” says Betsy George (Eastern Band of Cherokee Indians).

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Members of the kidney clinic at the Cherokee Hospital spend the day together, learning about kidney care.

“Before the group clinic, there was only a video to explain what dialysis was,” says Edith Crow (Cherokee), bottom left. “This group clinic has helped us feel better about what we can expect. It has helped us feel better about our emotions.”



Best Practice Model for American Indian/Alaska Native Communities: Dental Care for People with Diabetes – Screening, Treatment, and Follow-up

Advanced periodontal or gum disease occurs at rates two to three times higher among American Indians/Alaska Natives with diabetes

than for those who do not have diabetes. Infections that are often associated with advanced periodontal disease can interfere with an individual's blood sugar control. In addition, periodontal disease results in the loss of all teeth in approximately one third of American Indians/Alaska Natives with diabetes. Taking care of the dental needs of people with diabetes can prevent gum disease and tooth loss as well as result in the improvement of blood sugar control.

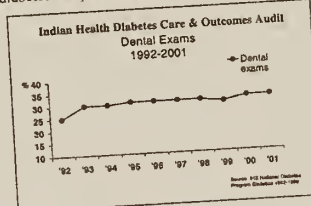
A review of Special Diabetes Program for Indians grant applications indicated that twenty five percent (25%) of grant programs used some or all of the best practice guidance for Dental Care for People with Diabetes – Screening, Treatment, and Follow-up to design and implement dental care activities in their communities.

Indian Health Best Practice Model

Dental Care for People with Diabetes – Screening, Treatment, and Follow-up

Why is this important?

Periodontal (gum) disease poses a serious threat to dental health and is the leading cause of adult tooth loss in the U.S. Periodontal disease is often present before the diagnosis of diabetes. All people with diabetes should have a dental exam at diagnosis and continue with an annual exam that screens for gum disease and other dental problems, thereafter. Taking care of the dental needs of people with diabetes can prevent gum disease and tooth loss.



What measures are used?

- The Indian Health Diabetes Care and Outcomes Audit measures the number of people with a dental exam within the past year. The graph shows the reported trends in yearly dental exams (for all Indian health clinics reporting audit data).
- The Healthy People 2010 objective advises that 75 percent of people with diabetes receive an annual dental exam.

How does your program compare?

- Find out your clinic audit measures for dental exams during the last few years.
- Write those numbers here: ____ % FY97 ____ % FY98 ____ % FY99
____ % FY2000 ____ % FY2001
- How do your numbers compare to the Indian health trends?
- How do your numbers compare to the Healthy People 2010 objective?

If your numbers are low, your diabetes grant program may want to develop a diabetes dental program. Here are some things to consider:

- Assess your local dental care program for people with diabetes. Are there unmet needs?
- Identify ways to increase the number of people who receive yearly dental exams.
- Develop a program that improves access to dental exams, including staffing, (dentists, dental hygienists, assistants) space, equipment and special needs.
- Provide education to people with diabetes and their families about the need for yearly dental exams.
- Provide timely treatment of periodontal (gum) and dental problems, including crowns and bridgework when needed.
- Promote care and treatment of other conditions such as high blood sugar, high blood pressure and tobacco cessation programs.

Program Conducts Creative Outreach on Ferries, and Offers Friendly Dental Clinic

On an Alaska ferry headed for the town of Sitka, Alaska Native teens are learning how to take care of their teeth. "I can't believe that one can of pop a day adds up to 35 pounds of sugar a year!" says one girl. The dental care table on the ferry is part of a diabetes education outreach effort of the Southeast Alaska Regional Health Consortium (SEARHC). The program aims to teach diabetes prevention and management to a service population of over 12,000. Teaching good dental care to Alaska Natives of all ages, especially those with diabetes and at risk for diabetes, is a major part of the program.

In the long, coastal strip of Southeast Alaska, people travel by ferry as readily as mainlanders travel by bus. SEARHC regularly sets up diabetes prevention and management tables on the ferries to take advantage of a built-in, captive audience.

Health staff say the long ferry rides (sometimes they are 2-3 days) can be boring, and passengers enjoy going from table to table, chatting and learning how to prevent and manage diabetes. The staff at the dental care table tells people how eating low-sugar foods and daily brushing and flossing keeps teeth strong. They tell people with diabetes that they especially need regular dental care.

All passengers are invited to the SEARHC dental clinic in Sitka. The dental clinic is located in the Mt. Edgecumbe Hospital, and follows the basic philosophy of the hospital: The patient is a partner. Staff recognize that the common fear of a dental visit is sometimes compounded by not-so-good childhood memories, when visits to a dentist were less than pleasant.

But, times have changed. The bright, cheerful SEARHC dental office is a

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Passengers on a two-day ferry trip to Sitka, Alaska, learn how pop damages teeth at a booth set up by the dental program of Southeast Alaska Regional Health Consortium (SEARHC). The consortium takes advantage of the ferry's captive audiences to provide diabetes prevention and management education.



welcoming place. One patient takes her children and grandchildren for dental exams and says, "It's a positive experience for them. The staff is always smiling and laughing."

People with diabetes are a major focus of the dental clinic. The diabetes educator refers them to the dental clinic to receive regular exams and extensive dental care education. Dental staff are part of a 27-member diabetes health team that tracks patients with diabetes, provides them with life-style change recommendations, and monitors the health of their teeth, eyes, kidneys, heart and feet.

The dental staff participate in all outreach events. In addition to the floating dental information booths on the ferries, dental staff also travel by car or plane to remote villages to conduct dental exams.

Staff recognize that the common fear of a dental visit is sometimes compounded by not-so-good childhood memories, when visits to a dentist were less than pleasant.



Ken Chester (Navajo) has diabetes and healthy teeth. He goes to the SEARHC dental clinic for regular dental exams.

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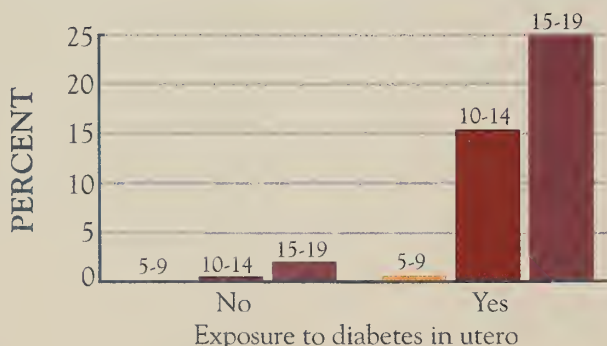
Best Practices

Best Practice Model for American Indian/Alaska Native Communities: Pregnancy and Diabetes – Screening, Management, and Follow-up

Diabetes in pregnancy poses risks for both the mother and baby. Screening and early treatment for gestational diabetes during pregnancy can help to reduce those risks.

A review of Special Diabetes Program for Indians grant applications indicated that **fifteen percent (15%)** of grant programs used some or all of the best practice guidance for Pregnancy and Diabetes – Screening, Management, and Follow-up to design and implement screening and follow-up activities in their communities.

Prevalence of diabetes among Pima children by age and exposure in utero



Source: Diabetes et al. Diabetologia 1998;41:904-910

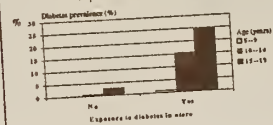
Indian Health Best Practice Model

Pregnancy and Diabetes – Screening, Management and Follow-up

Why is this important?

Diabetes in pregnancy poses risks for both mother and baby. Pregnant women with diabetes and their babies are at greater risk for complications during pregnancy than are women without diabetes. Careful management of diabetes during pregnancy, including early screening for gestational diabetes, reduces the risk of complications for mothers and babies. After pregnancy, women who have a history of gestational diabetes and their offspring are at risk for developing type 2 diabetes, obesity, and insulin resistance in later years. Early screening and careful management of diabetes in pregnancy offers the best chance for a healthy mother and baby. Breastfeeding for at least for 2 months may offer some protection against diabetes in the baby.

Prevalence of diabetes among Pima children by age and exposure to diabetes in utero



Source: Diabetes et al. Diabetologia 1998;41:904-910

What measures are used?

- Studies in the Pima Indians show the long-term effects of diabetes during pregnancy. This graph shows the percentage of children who developed type 2 diabetes of mothers who had diabetes during pregnancy. The numbers become greater as the youth enter their teen years.
- The Healthy People 2010 objective is to decrease the proportion of women with gestational diabetes.

Diabetes and pregnancy in your community

- Find out your rates of diabetes in pregnancy in your community. What is the trend?
- What are the screening and management practices for diabetes in pregnancy in your clinic?
- What type of follow-up is available for women with gestational diabetes?
- Are support services available for mothers who want to breastfeed?

You may find that your program wants to focus on diabetes in pregnancy. Here are some things to consider:

- Develop a program that improves access to pregnancy clinics including staffing, space, equipment, and community-based screening programs.
- Develop diabetes and pregnancy education and awareness programs. Identify ways to reach all women of childbearing age.
- Provide supplies and equipment for blood sugar monitoring.
- Develop programs that provide support, education and reinforcement of lifestyle choices to prevent, manage or treat diabetes in women of childbearing age and their families.
- Establish a multidisciplinary program that includes intense education, management by trained providers, and community involvement. Provide staff training.
- Include community networks that support women and families: preschool programs, feeding programs, Head Start, breast-feeding support groups and WIC.

Phoenix Indian Medical Center Helps Ensure Healthy Pregnancies

The first thing Diana Moreno did when she and her husband decided to have a child was talk with her doctor at the Phoenix Indian Medical Center (PIMC). Diana has had diabetes for three years and knew that having a baby when you have diabetes can be dangerous for both mother and baby.

Through education at the PIMC, Diana knew her blood sugar needed to be in good control before she became pregnant. She was put on insulin when she decided to get pregnant.

Diana had misconceptions about insulin. Like many people, she thought the needle would be big, like a needle to draw blood. "I found out that the needles are very thin. The shots didn't hurt," she says.

She also started working on getting her blood sugar in control. At first, her A1C was 12.4%. The goal was to get it below 7. "I had a lot of work to do," recalls Diana. "At first I didn't think I could do these things. But I wanted to have a healthy baby, so I knew it was worth it."

Diana met regularly with a Diabetes Educator, and started changing her habits. "I began

eating more fruits and vegetables. I quit drinking sugar drinks. I started drinking more water. I started exercising," she says. Her A1C number started dropping. It went down to 9, then to 7.

Now Diana's A1C is between 5 and 6. She has developed new habits. She walks at least three times a week for one hour at a park or on a treadmill. She skips high-fat foods like ice cream, chips, and hamburgers.

Diana now has her blood sugar under control. "I feel proud. My blood sugar is in control," she says. Because of the positive results of her hard work her doctor has given her the green light to get pregnant. She has a goal of having a healthy baby.

The education Diana is receiving at the PIMC will continue after she gives birth. It is part of an overall program that aims at preventing diabetes complications, ensuring healthy pregnancies, and promoting breastfeeding and healthy children.

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Diana Moreno (Yaqui) has diabetes and is working to have a healthy pregnancy. Through education at the Phoenix Indian Medical Center, Diana changed her eating habits, walked daily, and brought her A1C level down to 6.



Best Practice Model for American Indian/Alaska Native Communities: Type 2 Diabetes in Youth – Prevention and Screening

Type 2 diabetes is increasing among children and youth at an alarming rate. Early identification of and intervention in children and youth with risk factors can help to reverse this trend.

A review of Special Diabetes Program for Indians grant applications indicated that thirty three percent (33%) of grant programs used some or all of the best practice guidance for Type 2 Diabetes in Youth – Prevention and Screening to design and implement screening and prevention activities for children and youth at-risk for type 2 diabetes.

Indian Health Best Practice Model

Type 2 Diabetes in Youth—Prevention and Screening

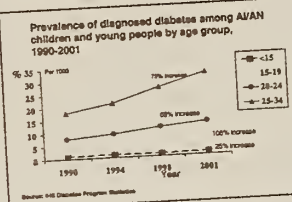
Why is this important?

Type 2 diabetes is occurring with increasing frequency in children and young adults. Although the peak age of occurrence is usually around adolescence, type 2 diabetes has been reported in American Indian children as young as 4 years. Risk factors for type 2 diabetes in children include obesity or being overweight; inactivity; a family history of type 2 diabetes; type 2 diabetes or gestational diabetes in the mother; belonging to a certain ethnic group, including American Indian; and signs of insulin resistance or conditions associated with insulin resistance such as hypertension, high blood lipids, or irregular menses. In addition, breastfeeding from birth for at least two months has been shown to be protective against the later development of diabetes.

What measures are used?

Finding type 2 diabetes in AI/AN youth is not uncommon. A recent IHS study shows that from 1990-2001:

- ▶ Among AI/AN youth age 15 to 19 years, diabetes increased by 106%;
- ▶ Among AI/AN young adults between 20 and 24 years, diabetes increased by 68%;
- ▶ Among AI/AN young adults age 25 to 34 years, diabetes increased by 79%.



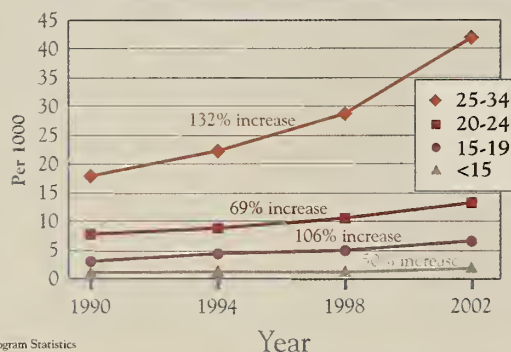
How does your program compare?

- ▶ Look at your diabetes registry. Determine your prevalence rates for type 2 diabetes in youth over the past few years. Look at the registry by age groups, sex and community.
- ▶ How do your numbers compare to the Indian health trends?
- ▶ Assess your diabetes prevention and screening programs. Are there unmet needs?

Your program may want to develop or improve diabetes programs for youth. Here are some things to consider:

- ▶ Assess your children/youth programs. Encourage information sharing among programs.
- ▶ Develop a screening, tracking and referral program for high-risk children (such as those whose mothers had diabetes during pregnancy).
- ▶ Promote community and family awareness through special programs in schools, camps, tribal events, family health programs, and community gatherings.
- ▶ Provide training programs on type 2 diabetes in youth for health care providers, social service workers, school and camp personnel, and others who work with families.
- ▶ Work with tribal and community leaders, churches, businesses and schools to promote the use of healthy foods and physical activity for all youth in your community.
- ▶ Consider breastfeeding promotion as a primary prevention activity.

Prevalence of Diagnosed Diabetes among Children & Young People by Age Group, 1990-2002



Source: IHS National Diabetes Program Statistics

Red Lake Ojibwe Students Learn How to Prevent Diabetes

Diabetes staff Eileen Summer was standing in front of the Red Lake Ojibwe tribal grocery store with a bag of non-fat chips in her hand. An elementary student walked over to her and said, "You shouldn't eat that. Potato chips are high in fat!"

The comment made Eileen smile. "Five years ago, that wouldn't have happened," she said. Just a handful of years ago, tribal youngsters did not know what was low-fat – or what was high-fat.

Eileen credits this increase in nutrition knowledge to the tribe's Workout Low Fat (WOLF) Program, a tribal-wide program that teaches first through fourth graders how to prevent diabetes by staying physically active and eating low-fat, low-sugar food.

Students learn about good health twice a week for eight weeks. The curriculum for first and second graders uses traditional turtle and crane characters and games like tee pee races to educate about good health. The main goal is to teach young students that the things they love to do – run, jump, swim, ride bikes and play ball – are great, and something they need to do their entire lives. And, by the end of the first two years, they learn what are "sometimes" foods and what are "everyday" foods. (French fries are sometimes foods; a small baked potato is an everyday food.)

The curriculum for fourth and fifth graders also uses characters modeled after traditional Indian storytelling. The comic-like characters are named Health Seeker and Bright Spark. They

are slim, strong, and energetic. By the end of the fifth grade, the students know that being healthy is desirable and reflects traditional Ojibwe values.

The WOLF program has influenced the school food program and families. The school has switched to providing healthier snacks, such as pretzels and yogurt. Parents are asked to sign off on student's healthy homework and, at the same time, learn about nutrition and exercise.

Robyn Isham is a mother of nine. Two of her children graduated from the WOLF program. "Our whole family learned what everyday foods are, versus foods you should eat only occasionally," she said. The information her children brought home helped the family make small but critical changes like drinking water instead of pop, eating fresh fruits and vegetables everyday, and riding bikes together.

The WOLF program has been implemented at three schools across the reservation, and affects over 450 youngsters and their families. These little health advocates are spreading the word about the benefits of good nutrition and daily exercise. They tell people at stores about the benefits of eating low-fat foods, and they inform their parents and siblings.

"They have made us more aware that diabetes prevention is a family concern," says parent Robyn Isham.

Robyn Isham (Ojibwe) has two children who learned about diabetes prevention from the tribe's Workout Low Fat Program. The entire family changed eating and exercise habits. Pictures from left to right are: Zachary Stately, Robyn Isham, Antasia Stately, Money Woman Stately, and Rain Stately (Ojibwe students).

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Best Practice Model for American Indian/Alaska Native Communities: Diabetes Self-Management Education

Diabetes self-management education is a process that includes a multidisciplinary team in teaching and, through the transfer of knowledge and skills, empowers patients and families to manage their diabetes. Allowing patients and families to participate in clinical and educational decision-making has been shown to have a positive effect on blood sugar control and behavioral outcomes.

A review of Special Diabetes Program for Indians grant applications indicated that thirty nine percent (39%) of grant programs used some or all of the best practice guidance for Diabetes Self-Management Education to design and implement diabetes education programs in their communities.

Indian Health Best Practice Model

Diabetes Self-Management Education

Why is this important?

Diabetes self-management education is a key element of diabetes prevention and treatment. People with diabetes and their families need to learn and practice new lifestyle skills. These skills include monitoring blood sugar, making healthy food choices, being more active and reducing risk for diabetes complications. People with diabetes must be active participants in the educational process, setting learning and behavioral goals that meet his or her physical, emotional, and lifestyle needs. Incorporating cultural methods of sharing ideas and skills may be the single, best way of helping people with diabetes and their families learn about diabetes self-management practices.

"If I had it to do all over again, I would follow a path of healthier living. . . . And if I would give advice to anybody, if they know they got diabetes, take care of it, get educated on what it could do."



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Photo credit: (unpublished) with diabetes in 1974

What measures are used?

- The Indian Health Diabetes Care and Outcomes Audit measures documentation of nutrition, exercise and general diabetes education. Audit trends show that over fifty percent of people with diabetes receive diabetes education each year.
- The Healthy People 2010 objective advises that 60 percent of people with diabetes receive formal diabetes education.

How does your program compare?

- Find out your clinic audit trends for nutrition, exercise and general diabetes education.
- How do your numbers compare to the Healthy People 2010 Objective?
- You can use the Indian Health Integrated Diabetes Education and Care Standards to assess your diabetes education program.

Your diabetes grant program may want to improve diabetes education services within your community. Here are some things to consider:

- Assess your diabetes education program. You can use the Indian Health Integrated Diabetes Education and Care Standards as a framework for your assessment, (available through the National Diabetes Program Web site-see below).
- Develop a plan to strengthen your diabetes education program based on community needs.
- Identify ways to reach your target populations. Use a variety of education approaches that work in your community—one-on-one, group classes, support groups, talking circles, cooking classes or activity programs.
- Provide needed resources for quality diabetes education: staffing, materials, training, space, etc.
- Involve spiritual and community networks in educational programs. Use respected ways of teaching tradition, cultural values and behavioral practices. Ask community members to share stories or messages about diabetes.



"If I had to do it all over again, I would follow a path of healthier living . . . And if I would give advice to anybody, if they know they got diabetes, take care of it, get educated on what it could do."

Lawrence Bedeau (Red Lake Band of Chippewa)
55 years old, diagnosed with diabetes in 1974

Diabetes Self-Management Means Gaining Sense of Control

Keith Haines (Mescalero Apache) and Gayle Eaglewoman (Crow Creek Sioux) have diabetes and learned about diabetes self-management at the Salt Lake City Indian Walk-In Center.

Before receiving diabetes self-management education at the center, both had incomplete information. Keith thought the best way to take care of himself was to take his diabetes pills; he did not consider lifestyle changes. "I figured I could keep on going the way I was. I just took my pills, and ate a lot of pasta, bread, and potatoes. I drank a lot of beer," says Keith. Now Keith limits his carbohydrates, eats lean meats and fish, goes on regular walks, and plays tennis.

Gayle was eating one to two candy bars a day, plus drinking two large sodas. After getting information from the center, she quickly changed her eating habits and dropped the candy and sodas. In three months, Gayle lost 20 pounds and was feeling good.

Besides knowing what to eat, center clients have a good understanding of the need for routine diabetes check-ups and tests. When they visit a clinic, they are not overwhelmed by diabetes language and are not afraid to ask questions. "When the doctor says something about diabetes, I understand," says Gayle. "I am able to understand almost everything my doctor tells me about diabetes," agrees Keith. "I feel a lot better during clinic visits."

Since self-managing their diabetes, both have seen great improvements in their blood sugar levels. Gayle had blood sugar readings above 250 and her A1C was 9. Now her blood sugar readings are between 90 and 140. She will receive her second A1C test soon. My goal is to get it between 6 and 7," she says. Keith, who has been practicing self-management longer than Gayle, lowered his A1C number from 15 to 7.

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Best Practices

Gayle Eaglewoman (Crow Creek Sioux) shops at the "Pantry" of the Salt Lake City Indian Walk-In Center. She knows what kinds of foods to choose to maintain good blood sugar levels. "I know what I'm doing, why I'm doing it, and what the benefits are," says Gale.



Best Practice Model for American Indian/Alaska Native Communities: Nutrition and Physical Fitness Programs for People with Diabetes

Nutrition education and physical activity are cornerstones of effective diabetes management. In addition, they have beneficial impacts upon risk reduction for heart disease and the promotion of overall health.

A review of Special Diabetes Program for Indians grant applications indicated that seventy five percent (75%) of grant programs used some or all of the best practice guidance for Nutrition and Physical Fitness Programs for People with Diabetes to design and implement nutrition and fitness programs in their communities.

Indian Health Best Practice Model

Nutrition and Physical Fitness Programs for People with Diabetes

Why is this important?

Nutrition and physical fitness play major roles in helping people with diabetes and their families stay healthy. Investment of time and resources in nutrition, fitness and lifestyle change promises long-term benefits not only for diabetes, but also in reducing risks for heart disease and promoting overall health. Blending traditional and local nutrition and fitness practices may help with needed lifestyle changes for families and communities.



- Involve people in the community in planning, staffing, and teaching nutrition and fitness programs.
- Consider offering programs in schools and work places. Consider offering programs during various times of the day such as after-school, women and infants, elders and other groups.

Nutrition and fitness in your community

- Look at diabetes rates in your community. What is the trend?
- Look at the diabetes audit measures for overweight and obesity, blood sugar control and other measures that nutrition and fitness programs may impact. What are the trends?
- Look at what program are currently in place. How can you work collaboratively?

Your diabetes grants program may want to consider a diabetes nutrition and fitness program. Here are some things to consider:

- Assess your local nutrition and fitness programs in your community. Are there unmet needs?
- Facilitate and ensure access to programs including staffing, space, equipment, and off-site facilities for community-based programs.
- Solicit sponsorship for nutrition and fitness programs from employers, supermarkets, churches, and clubs for young people.
- Use traditional ways of sharing and learning new information and practices.
- Train community members as nutrition and fitness leaders.
- Encourage all nutrition and fitness programs in your community to be collaborative not competitive.



After-school programs implement nutrition education for children and their families

Emotional Health Paves Way for Physical Health at Rapid City Program

At the Rapid City Indian Health Service Diabetes Program, a diabetes patient's first education meeting is long, is one-on-one, and it lasts as long as needed. For American Indians with diabetes who live in and around Rapid City, North Dakota, the style of the meeting is effective. It is not rushed. Information about the emotional side of diabetes, as well as diet and exercise, has time to sink in.

"I spend time with people," says Maria Ramos (Sioux), Physicians Assistant at the program. "During their first meeting, I try to make it as easy to understand as possible. I try to let people know they can live well with diabetes. We throw so much at people and expect them to understand..."

During the first meeting Maria, who has diabetes, empathizes with the patients. She doesn't spend a lot of time talking about specific eating strategies or how many minutes to exercise. If the conversation goes to diet and exercise, Maria simply says that it is better to eat less food and be a little more active.

Patients usually meet with Maria once a week. They discuss whatever the patient needs to talk about. Many times they talk about emotions. "It may take three or four visits for them to admit they are scared," she says. During these early visits, Maria asks less about diet and exercise, instead asking the question, "How are you coping?"

Patients have their own timeline. Some need much time to deal with their feelings of fear and guilt. Others move past these feelings, and are ready to learn about diet and exercise.

When the patient is ready, Maria gives them information to help them eat better and exercise more. She sets up appointments with a nutritionist, and refers them to the Okiciyapi (Helps Another) Wellness Center, located a short walk away. The Center has two floors of exercise equipment, and is staffed with fitness trainers and counselors. Special Diabetes Program for Indians grant funds have helped the program hire two additional staff. The number of people using the Center has doubled.

In addition, special programs have been created to prevent and manage diabetes:

- Weight Assessment and Intervention Team (WAIT), provides screening and exercise plans for patients with diabetes
- Regular wellness walks in the community
- Nutrition education programs that are sensitive to people on budgets

Because of increased education, improved facilities and additional staff, more people with diabetes are keeping their blood sugars in normal ranges. At the Rapid City Diabetes Program, this is possible partly because of the early attention to emotions. Emotional care is the foundation of good physical care.

Megan Webster (Omaha Tribe of Nebraska), Fitness Coordinator, guides Geraldine Goes In Center (Oglala Lakota) on the treadmill. Geraldine does not have diabetes, but has diabetes in her family. She exercises in the Okiciyapi Wellness Center every day. She has lost 15 pounds in 7 months.

CHAPTER FIVE

Best Practices

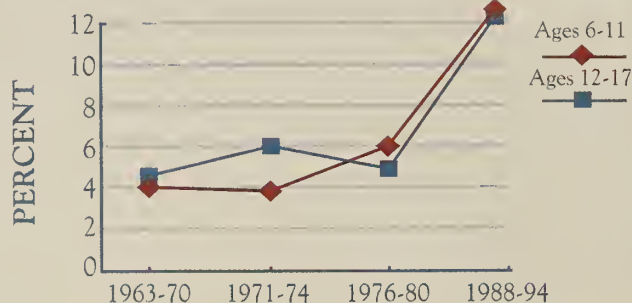


Best Practice Model for American Indian/Alaska Native Communities: School Health – Physical Activity and Nutrition

Schools help young people and their families develop healthy eating and physically active lifestyles by implementing effective policies and educational programs focusing on nutrition and physical activity.

A review of Special Diabetes Program for Indians grant applications indicated that **thirty nine percent (39%)** of the grant programs used some or all of the best practice guidance **School Health – Nutrition and Physical Activity** to partner with their local schools to implement and increase nutrition and physical activity programs for children and youth in their communities.

Percentage of Young People Who Are Overweight



Overweight defined by age- and sex-specific 95th percentile of body mass index (1963-70)
Source: Trolano RP; Flegal KM. Pediatrics 1998;101(3):497-504.

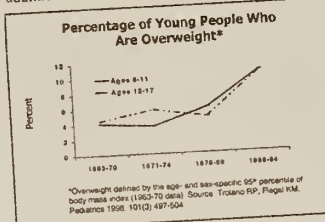
Indian Health Best Practice Model

School Health – Physical Activity and Nutrition

Why is this important?

The school setting, ranging from preschool to college, can be a successful environment for diabetes prevention activities within the community. Schools can develop effective policies and educational programs that help young people and their families to increase physical activity and to learn and practice healthy eating. Establishing healthy eating and physical activity patterns at a young age is critical. Changing poor eating patterns in adulthood can be difficult.

- Implement a curriculum that focuses on increased physical activity and healthy eating.
- Establish non-competitive and competitive physical activity programs for all ages and abilities. Consider after school, summer and family activity programs.
- The **Healthy People 2010** objective specifies that 90 percent of children and youth receive school health education on increase physical activity and 95 percent receive education on healthy dietary patterns.



What measures are used?

- **Type 2 diabetes among adolescents** is linked to the childhood obesity epidemic. According to the American Diabetes Association, more than 85% of all children and adolescents with type 2 diabetes are seriously overweight at the time of diagnosis. The graph shows the increasing percentage of young people who are overweight.
- Nutrition and physical activity patterns contribute to obesity. More than 84% of young people in the U.S. eat too much fat, and more than 91% eat too much saturated fat. Nearly half of American youth, 12-21 years, are not active.

Your Community

- How many of your schools provide healthy eating and physical activity education programs?
- Write those numbers in here: Preschool Elementary Jr. High High School

If your numbers are low, your diabetes grant program may want to focus on a school health program. Here are some things to consider:

- Assess your local schools. Involve the parents, school staff and community by establishing a school health advisory council to develop a program that works for all.
- Support parents and caregivers by providing guidance in parenting skills along with tools that encourage healthy eating habits and physical activity.
- Work with your schools to offer meals and snacks low in fat, sodium, and added sugars.
- Provide training to teachers and food service staff on obesity and its consequences; especially type 2 diabetes of children and adolescents.

Students Learn Traditional Ways to Avoid Diabetes

Students at Black Bear Elementary School in Cloquet, Minnesota are learning about how to prevent diabetes through a nutrition and exercise program that emphasizes a return to more traditional ways. The students participate in the Work Out Low Fat (WOLF) Program, and attend a drumming and powwow dance class. "It's important to look at the whole child and total wellness," says principal Sara Montgomery.

The children learn the importance of eating vitamin-packed, low-fat, low-sugar foods, and being active every day. What they learn has also changed the eating and activity habits of teachers. Sara says teachers now eat better. Some have started bringing special, healthy sack

lunches to work. Many have worked to improve the lunches and snacks served at school. A diabetes prevention team from the school asked the school board not to sell unhealthy food at school fund-raisers. Now, pop is not sold.

Teacher Meredith Martin says the WOLF Program is successful at Black Bear because it is culturally relevant. Children learn about traditional Native health of body, mind, and spirit. They learn powwow dancing and drumming, and are encouraged to return to more traditional diets. "This is one of the first programs I've seen that is specific to Native Americans," she said.

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Timmie Tiessen (Fond du Lac), left, and Christopher Rave (Winnebago) learn powwow drumming and dancing at a Fond du Lac Ojibwe elementary school. The school offers a diabetes prevention program that encouraged a return to traditional ways of eating and physical activity.



Summary

Based on Congressional direction, the IHS National Diabetes Program developed a consensus-based, Indian health best practices approach. The IHS National Diabetes Program established a Best Practices Workgroup that developed 14 Best Practice Models for successful diabetes prevention, treatment, and education practices in AI/AN communities. The diabetes grant programs successfully used the Best Practice Models to identify strengths and gaps in diabetes services and resources, establish program priorities, and develop work plans to implement local best practices for diabetes care and diabetes prevention.



"When a certain beautiful elderly Yupik woman sees me, she always looks me in the eyes and says, 'I know that you will take care of me.' She has said the same thing to me for 20 years. She trusts me to take care of her. I have a big responsibility to her, and to everyone else in my region, and in Indian Country. I also have a big responsibility to take care of myself, stay healthy and be a healthy role model."

Sally Smith, Curyung, Alaska

Chapter 6

CHALLENGES OF THE SPECIAL DIABETES PROGRAM FOR INDIANS

The Special Diabetes Program for Indians provided much needed funding for diabetes treatment and prevention services. However, significant diabetes-related challenges remain in American Indian and Alaska Native (AI/AN) communities. As part of its evaluation of the Special Diabetes Program for Indians, the Indian Health Service (IHS) National Diabetes Program developed a set of questions regarding the challenges of the diabetes grant programs. The questions assessed the challenges related to staffing, space needs, training and technical assistance, education, behavior change, and evaluation. This chapter highlights the key challenges reported by the diabetes grant programs established with Special Diabetes Program for Indians funding.

A. Staffing

The IHS National Diabetes Program asked the diabetes grant programs about staffing challenges that occurred during implementation of their activities.

- A significant proportion of the diabetes grant programs reported that they have **vacancies** in their communities for dietitians or public health nutritionists (45%), nurses (34%), diabetes educators (37%), primary care providers (37%), medical specialists (39%), physical activity specialists (52%), and diabetes coordinators (26%).

B. Space

The IHS National Diabetes Program asked the diabetes grant programs about space problems that occurred during implementation of their activities.

- 46% of the diabetes grant programs reported **finding adequate space** was a significant problem.

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Challenges

C. Access

The IHS National Diabetes Program asked the diabetes grant programs about challenges in access to services that occurred during implementation of their grant programs.

- 29% of grant programs report that **being located in a remote area** makes access to services a significant challenge.

D. Clinical

The IHS National Diabetes Program asked the diabetes grant programs about clinical challenges faced during implementation of their activities.

- 44% of the diabetes grant programs reported that they faced challenges during the early phases of program development on **methods for screening for diabetes**.
- 47% of the diabetes grant programs reported that they faced challenges in the **development of clinical guidelines and standards of care** for diabetes.
- 49% of the diabetes grant programs reported that they faced challenges in **program development on the medical treatment of diabetes**.

E. Education

The IHS National Diabetes Program asked the diabetes grant programs about education challenges faced during implementation of their activities.

- A significant proportion of the diabetes grant programs reported that they needed additional technical assistance in **developing education materials** (38%) and **developing education programs** (48%).
- 55% of the diabetes grant programs reported they needed additional technical assistance in **achieving certification for reimbursement** for diabetes education services.
- 22% of the diabetes grant programs reported that they **lacked culturally appropriate diabetes education materials**.

F. Behavioral

The IHS National Diabetes Program asked the diabetes grant programs about behavioral challenges faced during implementation of their activities.

- 18% of the diabetes grant programs reported **feeling that diabetes is too big a problem to address**.
- 28% of the diabetes grant programs reported that **community members think there is no way to avoid diabetes**.

- 29% of the diabetes grant programs reported that **community members think there is no way to avoid the health problems** sometimes associated with diabetes.
- 61% of the diabetes grant programs reported that their program needs **technical assistance to help clients change behavior**.

G. Evaluation and Data Collection

The IHS National Diabetes Program asked the diabetes grant programs about evaluation challenges faced during implementation of their activities.

- 37% of the diabetes grant programs reported that **program evaluation** was a significant challenge faced by their program.
- 57% of the diabetes grant programs reported that **epidemiology and surveillance activities** (i.e., tracking cases) were a significant challenge.

H. Training and Technical Assistance

The IHS National Diabetes Program asked the diabetes grant programs about training and technical assistance challenges faced during implementation of their activities.

- 34% of the diabetes grant programs reported that additional technical assistance for **grant writing and planning** could be used.
- 36% of the diabetes grant programs reported that additional technical assistance for **planning and community assessment** could be used.
- 28% of the diabetes grant programs reported a significant need for technical assistance on **program management and leadership skills**.
- 46% of the diabetes grant programs reported a significant need for additional training in **RPMS/PCC**.
- 42% of the diabetes grant programs reported a need for additional training and technical assistance on the **diabetes chart audit and Epi Info software**
- 62% of the diabetes grant programs reported that additional technical assistance in **statistics, data analysis, and research on program impacts and outcomes** could be used.

Summary

The Special Diabetes Program for Indians provided the IHS National Diabetes Program with the opportunity to ask the diabetes grant programs about the challenges that remain in their AI/AN communities. In its evaluation, the IHS National Diabetes Program determined that the majority of diabetes grant programs faced challenges related to staffing, space needs, training and technical assistance, education, behavior change, and evaluation. The IHS National Diabetes Program and its partners will continue to provide the diabetes grant programs with the leadership and assistance necessary to meet and rise above these challenges.



"My dream is to have each child able to grow up to be happy and healthy with wellness in their minds and bodies."

Betty Marshall (Yankton Sioux)

Chapter 7

CONCLUSIONS

In the Balanced Budget Act of 1997, Congress established the Special Diabetes Program for Indians to provide prevention and treatment services to address the growing problem of diabetes in American Indians and Alaska Natives (AI/ANs). The Balanced Budget Act also required an Interim (2000) and Final Report to Congress (2002). Since the Special Diabetes Program for Indians funding was extended to FY 2008, the Indian Health Service (IHS) National Diabetes Program decided to conduct an interim evaluation to provide Congress with a progress report on how the Indian health system is meeting the original legislative intent.

The information provided in the preceding chapters was assembled to meet the **original objectives of this evaluation:**

- 1) To determine whether the Special Diabetes Program for Indians did implement prevention and treatment services to address the growing problem of diabetes in AI/ANs.
- 2) To measure whether the prevention and treatment services implemented through the Special Diabetes Program for Indians resulted in short-term, intermediate, or long-term positive outcomes.

This evaluation is the most comprehensive evaluation of this initiative to date. Using a variety of data sources, the IHS National Diabetes Program demonstrated significant accomplishments related to the first objective of the evaluation by comparing the level of prevention and treatment services available prior to the Special Diabetes Program for Indians funding, and **increased levels of services** after five years of funding.

The IHS awarded Special Diabetes Program for Indians grants to 318 programs under 286 administrative organizations within the 12 IHS Areas in 35 states. The IHS distributed:

- 27 (9%) grants to IHS programs
- 33 (10%) grants to urban Indian health programs
- 258 (81%) grants to tribal programs

CHAPTER SEVEN

Conclusions

Short-term Outcomes

Compared to their level of services prior to the funding (before 1998), the programs funded under the Special Diabetes Program for Indians achieved the following improvements (**short-term outcomes**) in diabetes prevention and treatment services as of FY 2002:

- Availability of **basic clinical exams** increased (foot exams, eye exams, dental exams)
- Availability of **newer medications and therapies** for diabetes treatment increased (medications for glycemic control, lipid lowering, ACE inhibitors, medical nutrition therapy)
- Availability of **laboratory tests** to assess diabetes control and complications increased (A1C, lipids, urinary microalbumin, urinalysis)
- **Screening** for diabetes and pre-diabetes increased
- **Adults and elders** were screened for several risk factors of diabetes (screening for pre-diabetes, overweight and obesity, acanthosis nigricans, offspring of a diabetic pregnancy)
- **Children and youth** were screened for several risk factors of diabetes (screening for pre-diabetes, overweight and obesity, acanthosis nigricans, offspring of a diabetic pregnancy)
- Screening occurred in a **variety of locations** (community events, health fairs, community and senior centers, schools and day cares, home visits, hospitals and clinics)
- Use of **key elements of quality diabetes care** increased (diabetes registries, flowsheets, diabetes teams, diabetes clinics)
- Multidisciplinary diabetes **team staffing** increased (registered dietitians and nutritionists, diabetes educators, medical specialists, physical activity specialists)
- Availability of **nutrition education services** by registered dietitians and public health nutritionists increased (registered dietitian or public health nutritionist on diabetes team, medical nutrition therapy services, nutrition activities and classes for family members)
- Conduct of **community diabetes needs assessments** increased
- Partnerships of **tribal leaders and tribal members** on diabetes-related issues increased
- Local **community partnerships** increased
- Partnerships with **outside organizations** increased
- **Policies** addressing diabetes prevention and care increased

- Availability of **organized diabetes education programs** and support services increased (organized diabetes education programs, diabetes support groups, community behavioral health program services)
- Availability of **culturally appropriate diabetes education materials** and education approaches increased (access to materials, budget for materials)
- A variety of **methods of diabetes education** were provided (settings, types of materials, community-based methods)
- Availability of **continuing education** opportunities for health care providers increased
- A variety of **traditional approaches** were implemented
- **Primary prevention** activities were funded (health behavior change, nutrition, physical activity)
- **Diabetes awareness** activities increased
- Availability of **physical fitness activities** increased (walking and running activities; aerobics and strength training; exercise consults; recreation, wellness, fitness, and facilities)
- Availability of **community nutrition services** increased (cooking classes and grocery store tours, traditional food and nutrition activities, weight management programs)
- Programs collaborated with the U.S. Department of Agriculture to improve nutrition in communities (commodity food program, school lunch program, summer feeding program)
- Diabetes primary prevention programs for **children and youth** increased
- **Screening and management of overweight and obesity** among children and youth increased
- **Nutrition education programs for children and youth** increased
- **Community-based healthy eating programs** for children, youth, and families increased
- **Physical activity programs for children and youth** increased (community and school-based walking and running activities, fitness classes, playgrounds, physical activity programs)
- **Breastfeeding promotion** programs were implemented

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Conclusions

Intermediate and Long-term Outcomes

The IHS Diabetes Program also demonstrated significant accomplishments related to the second objective of the evaluation by demonstrating a variety of **intermediate and long-term outcomes** that have been achieved since implementation of the Special Diabetes Program for Indians:

- Control of **blood glucose** has steadily improved (decrease in mean A1C levels)
- Control of **blood pressure** has steadily improved (decrease in diastolic blood pressure levels)
- Control of **total cholesterol** levels has steadily improved
- Control of **LDL cholesterol** has steadily improved
- Control of **triglycerides** has steadily improved

These improvements in the control of diabetes were also associated with certain diabetes program elements implemented with funding from the Special Diabetes Program for Indians:

- Activities associated with **better glycemic control** (diabetes teams, availability of A1C tests, organized diabetes education programs, diabetes support groups, culturally appropriate diabetes education materials, self-monitoring of blood glucose)
- Activities associated with **better blood pressure control** (diabetes teams, availability of ACE inhibitors, diabetes clinics)
- Activities associated with **lower total cholesterol levels** (diabetes clinics; culturally appropriate diabetes education materials; diabetes education programs, recreation, wellness, fitness facilities)
- Activities associated with **lower LDL levels** (diabetes team; culturally appropriate diabetes education materials; organized diabetes education programs; recreation, wellness, and fitness facilities)
- Activities associated with **lower triglyceride levels** (medical nutrition therapy, registered dietitian or public health nutritionist, traditional foods and nutritional activities)
- Medical Nutrition Therapy associated with **better glycemic control**
- Nutrition-based interventions associated with **lower Body Mass Index** (diabetes clinic, registered dietitian or public health nutritionist, traditional food and nutrition activities, nutrition education budget)

Complications of Diabetes

The IHS National Diabetes Program also made significant improvements in treatments to **reduce risk factors for the complications of diabetes** since implementation of the Special Diabetes Program for Indians:

- Treatment of risk factors for **cardiovascular disease** has improved (lower diastolic blood pressure, increased tobacco free status, increased aspirin use)
- Treatments to prevent and delay the progression of **diabetic kidney disease** have improved (ACE inhibitor use, tests for microalbuminuria)
- Treatments to detect and treat **diabetic eye disease** have improved (Joslin Vision Network)

Baseline Measures

The IHS National Diabetes Program improved the accuracy of **baseline long-term outcomes measures** (prevalence and mortality) so that the ultimate successes and outcomes of the Special Diabetes Program for Indians can be measured accurately when they improve in the future:

- Accurate baseline data for ongoing measurement of the **prevalence** of diabetes was established (over time, by age groups, compared to the general population, compared to other racial and ethnic groups, among IHS Areas, increases in prevalence, prevalence in youth)
- Accurate baseline data for ongoing measurement of diabetes **mortality** was established (over time, compared with other races, by IHS Area, adjusted for undercounting)
- A Diabetes Data Warehouse using RPMS data was established to accurately measure the **long-term complications** of diabetes

Best Practice Models

In response to Congressional direction, the IHS National Diabetes Program used the supplemental funding from the Consolidated Appropriations Act to build upon the successes of the diabetes grant programs through a consensus-based Indian health best practices approach. Fourteen **Best Practice Models** were developed to assist grant programs:

- Basic diabetes care and education – A systems approach
- Cardiovascular disease and diabetes – Screening, treatment, and follow-up

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Conclusions

Best Practice Models:

- Community advocacy – Winning support for your diabetes program
- Dental care for people with diabetes – Screening, treatment, and follow-up
- Eye care for people with diabetes – Screening, treatment, and follow-up
- Foot care for people with diabetes – Screening, treatment, and follow-up
- Kidney disease – Screening, prevention, treatment, and follow-up
- Medications for diabetes care
- Nutrition and physical fitness programs
- Pregnancy and diabetes – Screening, management, and follow-up
- School health – Nutrition and physical activity
- Diabetes screening programs
- Diabetes self-management education
- Type 2 diabetes in youth – Prevention and screening

Collaborations and Partnerships

The IHS National Diabetes Program developed and built upon **collaborations and partnerships** with federal and private organizations as a result of the Special Diabetes Program for Indians:

- Department of Health and Human Services Agencies (Centers for Medicare and Medicaid Services, National Institutes of Health, Centers for Disease Control and Prevention Division of Diabetes Translation, Head Start Bureau)
- AI/AN Organizations (American Indian Higher Education Consortium, National Indian Council on Aging, Association of American Indian Physicians, National Indian Health Board, American Indian Epidemiology Centers, Urban Indian Nurses Association)
- Diabetes Expert Organizations (American Diabetes Association, Joslin Diabetes Center, American Association of Diabetes Educators, American Academy of Pediatrics, Juvenile Diabetes Research Foundation, Diabetes Research and Training Centers, International Diabetes Center, MacColl Institute of Group Health Cooperative of Puget Sound)
- Academic Institutions (University of New Mexico, University of Arizona, University of Southern California)
- Other Organizations and Agencies (U.S. Department of Agriculture)

Challenges

In addition to their accomplishments, the diabetes grant programs also provided the IHS National Diabetes Program with information on their challenges after administering diabetes prevention and treatment services in AI/AN communities for over five years. Their **challenges** occurred in the following areas:

- Administrative
- Clinical
- Training and Technical Assistance
- Staffing
- Education
- Behavioral
- Space
- Evaluation
- Access

Five Years Later: Lessons Learned

The implementation of the Special Diabetes Program for Indians was a complex process that developed a variety of new diabetes prevention and treatment services in AI/AN communities and achieved numerous accomplishments as noted in this document. As a result of this interim report, the IHS National Diabetes Program staff reviewed the lessons that were learned from this initiative. The lessons learned are summarized below:

- **The important role of tribal consultation**
 - ▶ Tribal consultation played an important role in all aspects of this initiative.
 - ▶ The IHS developed a tribal consultation process during this initiative that now serves as a model for other consultation efforts.
 - ▶ The Tribal Leaders Diabetes Committee was formed during this initiative and serves as a model advisory group for federal agencies.
- **The important role of tribal leadership**
 - ▶ Diabetes emerged as a tribal priority during this initiative.
 - ▶ Tribal leaders played a critical role in advocacy efforts.
 - ▶ This was the first time that tribal leaders came together to fight a chronic disease.
 - ▶ The Tribal Leaders Diabetes Committee now provides advice and guidance to other national programs and agencies on diabetes.

The IHS developed a tribal consultation process during this initiative that now serves as a model for other consultation efforts.

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This was the first time that tribal leaders came together to fight a chronic disease.

IHS clinics worked in partnership with tribes, many for the first time.

Community-based assessment and planning played an important role in the design of programs.

- **The important role of collaboration between tribes and federal programs and agencies**
 - ▶ This initiative required tribes and the IHS to work together.
 - ▶ The Indian health system and its federal partners learned the importance of working together.
 - ▶ IHS clinics worked in partnership with tribes, many for the first time.
 - ▶ The initiative was accomplished by incorporating both tribal and federal processes and procedures.
- **The important role of communities in the fight against diabetes**
 - ▶ This initiative successfully implemented treatment and prevention services in community-based programs.
 - ▶ Community awareness of diabetes and how to address it increased.
 - ▶ Community-based assessment and planning played an important role in the design of programs.
 - ▶ The community provided a cultural perspective on activity development.
 - ▶ The diversity and creativity of grant activities resulted from community involvement.
 - ▶ Communities implemented primary prevention programs based on their local needs, before research evidence was found.
- **The important role of training and building community capacity**
 - ▶ Most programs were the first of their kind in their communities.
 - ▶ Communities developed an infrastructure that did not exist prior to the initiative.
 - ▶ Programs learned what is involved in building a diabetes program.
 - ▶ Programs learned the importance of systems and public health approaches to diabetes care.
 - ▶ Programs built capacity in the field.
 - ▶ Programs learned grant writing skills.
 - ▶ Program learned how to assess community needs.
 - ▶ The IHS National Diabetes Program learned how to assist communities.

- **The important role of program evaluation**
 - ▶ Programs learned the importance of evaluation and how to link program elements with outcomes.
 - ▶ Training was needed on program evaluation.
 - ▶ Multiple methods of evaluation were needed for the diverse activities implemented in diverse settings.
 - ▶ The challenge of evaluating an initiative of this magnitude was appreciated.
- **The important role of sharing information**
 - ▶ The initiative showed that there is more than one way to address the problem of diabetes and to approach prevention and treatment.
 - ▶ Programs learned many lessons during program development and implementation that could be helpful to other programs.
 - ▶ Programs learned a lot about how to accomplish goals in communities and how to promote change.
 - ▶ Dissemination of diabetes information and information on successful programs is important.
 - ▶ Dissemination of diabetes information is applicable to other diseases.
 - ▶ The IHS National Diabetes Program learned how to improve communication with the field.
 - ▶ Dissemination efforts have placed Special Diabetes Program for Indians activities and programs on the national radar screen.
- **The important role of building programs based on best practices**
 - ▶ A consensus process was developed to determine a series of best practices to be used by programs.
 - ▶ The IHS National Diabetes Program shared the best practices among the programs.
 - ▶ Lessons learned from the Model Diabetes Programs were shared.
 - ▶ Most activities in this initiative built on prior successes.

Programs learned the importance of systems and public health approaches to diabetes care.

Programs learned the importance of evaluation and how to link program elements with outcomes.

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Programs learned how to accomplish goals in communities and how to promote change

Most activities in this initiative built on prior successes.

Programs faced challenges in hiring and retaining health professionals in rural areas.

The overall quality of diabetes care can now be measured, similar to quality report cards, among programs and for the entire system.

- **The important role of building on the existing network**
 - ▶ The IHS National Diabetes Program developed a network of diabetes programs prior to this initiative.
 - ▶ The strength of this network was enhanced during this initiative.
 - ▶ This network helped provide a foundation for the success of this initiative.
- **The challenge of staffing programs in rural areas**
 - ▶ Programs faced challenges in hiring health professionals in rural areas.
 - ▶ Programs faced challenges of retaining health professionals in rural areas.
 - ▶ Finding specialty staff was a challenge in rural areas.
- **The important role of data collection and surveillance**
 - ▶ Early in the initiative, it was clear that systems were not in place to measure common indicators.
 - ▶ The importance of ongoing measurement was realized.
 - ▶ A variety of methods were needed to measure diabetes data.
 - ▶ The IHS National Diabetes Program required that all programs participate in the IHS Diabetes Care and Clinical Outcomes Audit.
 - ▶ Participation in the audit increased, particularly in tribal programs.
 - ▶ The overall quality of diabetes care can now be measured, similar to quality report cards, among programs and for the entire system.
 - ▶ Complications data can now be followed.
 - ▶ The unique challenges of urban programs were recognized and a plan to address these challenges is being implemented.
 - ▶ Tribal epidemiology centers helped with data improvement efforts.
 - ▶ A non-clinical audit was developed for programs without clinical services.

- **The IHS developed a grant process for this complex initiative**

- ▶ The grants were non-competitive, allowing local tribal priorities to emerge.
- ▶ The IHS took a positive approach to help every program succeed.
- ▶ The IHS developed an easy-to-use Request for Grant Application and application process that addressed local community needs.
- ▶ The application process that was developed understood that tribes were not typical grantees.
- ▶ A process was developed that incorporated federal and tribal ways of doing business.
- ▶ Fewer resources than is usual in the federal system were used to administer this grant program.

The IHS took a positive approach to help every program succeed.

- **The IHS implemented this complex grant process despite little experience with grant administration**

- ▶ Programs learned how to develop and track budgets within a grant mechanism.
- ▶ Programs learned basic grant writing skills.
- ▶ Flexible payment options were needed (e.g., four grant timelines and lump sum payments to compacted tribes).
- ▶ IHS learned to monitor a large number of grant programs to ensure accountability.

IHS learned to monitor a large number of grant programs to ensure accountability.

- **The importance of developing partnerships and utilizing other resources**

- ▶ Partnerships were needed on the local and national levels.
- ▶ Tribes learned how to leverage other funding (e.g., construction was not covered).
- ▶ Partnerships with other federal agencies led to unanticipated outcomes (e.g. Diabetes-Based Science Education in Tribal Schools [DETS] Program).
- ▶ Partnerships with urban programs were established.
- ▶ Programs learned that Congress is responsive to our needs.
- ▶ The Tribal Leaders Diabetes Committee now plays a role in advising other programs and agencies.

All of these lessons learned will not only help this initiative continue to be a success but also inform other national initiatives of this kind.

CHAPTER SEVEN

Conclusions

Programs learned that Congress is responsive to our needs.

Summary

In summary, the Special Diabetes Program for Indians funding resulted in over 300 new diabetes treatment and prevention services in AI/AN communities, consistent with its original legislative intent, and has resulted in numerous accomplishments so far. With five more years of funding, these programs will be able to continue to fight the epidemic of diabetes in AI/AN communities. While the ultimate outcomes of reducing the morbidity and mortality from diabetes will take more years, the programs and activities implemented under the Special Diabetes Program for Indians provide a strong foundation and a new beginning towards a diabetes-free future.



"As our ancestors looked out for us, we need to look out for our children and grandchildren. I want our people to have good lives. Together, let's build a diabetes-free future for our children."

Lorelei De Cora (Winnebago Tribe of Nebraska)

Appendix I

THE EPIDEMIC OF TYPE 2 DIABETES

Diabetes is a serious problem for American Indians and Alaska Natives (AI/ANs), who suffer from the highest rates of diabetes in the world. Virtually unknown 60 years ago, diabetes and its complications are now major contributors to morbidity and mortality in every AI/AN community. The Balanced Budget Act of 1997 and the Consolidated Appropriations Act of 2001 provided much-needed funding for the Indian health system to address this epidemic.

A. The Epidemic of Type 2 Diabetes

Demographics of American Indians and Alaska Natives

AI/ANs are often lumped into one group, but the needs and issues of each community and region are variable. The federal government recognizes more than 560 tribes, and approximately 40% of the 2.5 million AI/ANs live on federal and state reservations or in Alaska Native villages.¹ Although most tribal communities are located in rural areas, each community has unique characteristics that affect the health care that its members receive. For example, some tribes have large hospitals with a team of doctors and specialists, whereas other tribes have a small clinic staffed by only a mid-level practitioner or community health aide. Some tribes are located near an urban center making access to specialty care relatively easy for patients, whereas other tribes are located in remote rural areas where accessing even basic health care is difficult.

More than 60% of the 2.5 million AI/ANs currently live in urban areas.² During the 1950s, government policies and programs, as well as economic conditions, resulted in the relocation of many AI/ANs to urban centers.³ Urban Indians are not always able to escape poverty, inadequate education, alcoholism, and drug dependence, which often make life difficult in some tribal communities. Furthermore, many urban Indians move frequently and often do not have a regular source of medical care.⁴

Although most tribal communities are located in rural areas, each community has unique characteristics that affect the health care that its members receive.

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Although rural and urban Indians have variable needs and issues, they often share the problem of inadequate access to health care and the burden of poor living conditions. These factors have contributed to the poor health status of AI/ANs, regardless of their residence on reservations or in urban centers.

Emergence of the Diabetes Epidemic in AI/ANs

Diabetes is a relatively new problem for AI/ANs, and is the consequence of drastic lifestyle and cultural changes that have occurred since World War II. Prior to World War II, reports of diabetes were rare in the AI/AN population. Throughout the 1950s and 1960s, the reports of diabetes among AI/ANs were increasing. By the late 1970s, it became evident that an epidemic of diabetes had emerged in the AI/AN population.⁵

Much of our information about the nature and impact of diabetes in AI/AN communities comes from ongoing cooperative studies with the Pima Indians of Arizona that have been funded by the National Institutes of Health for over 25 years. The Pima Indians have the highest rates of diabetes in the world. More than half of adult Pima Indians have diabetes, and the mortality rate due to diabetes is more than 10 times greater than that of Caucasians. The Pima Indian studies and data from other tribes show that the major factors contributing to diabetes in AI/ANs are obesity, family history, and high levels of insulin in the blood, which results in a forerunner of diabetes called insulin resistance.⁶

Diabetes Prevalence

Of all U.S. racial and ethnic groups, AI/ANs have the highest rates of diabetes prevalence. In fact, AI/ANs now have the highest published prevalence of diabetes in the world. In 2000, 15.1% of AI/ANs aged 20 years or older had diagnosed diabetes, compared to 7.8% for non-Hispanic whites.⁷ In some tribes, notably the Pima Indians of Arizona, over half of the adults have diabetes.⁸ However, the American Diabetes Association estimates that the actual prevalence of the disease may still be one-third higher in many communities because of undiagnosed cases.⁹

Diabetes is increasing in prevalence among all AI/AN communities and age groups. IHS studies show that between 1997 and 2001, the prevalence of diabetes increased 33% in all major regions served by the agency. Among adults, AI/AN adults between the ages of 20–34 years experienced the highest increase in diabetes prevalence (an increase of 52% from 1997 to 2001).

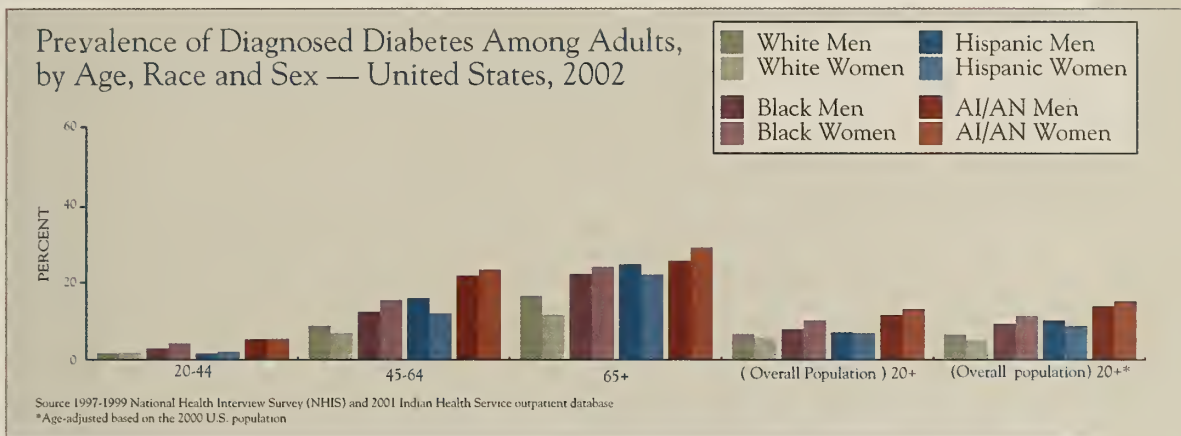
Most alarming is the increase in diabetes prevalence in children and adolescents. Type 2 diabetes was previously thought to be a disease of adults

Diabetes is a relatively new problem for AI/ANs, and is the consequence of drastic lifestyle and cultural changes that have occurred since World War II.

Diabetes is increasing in prevalence among all AI/AN communities and age groups.

and was considered exceedingly rare in children and adolescents. Among all age groups, the highest increase in prevalence has occurred among AI/AN adolescents aged 15–19 years, with a 106% increase from 1990 to 2001.¹⁰ Because these young people have acquired diabetes at such an early age, they will experience more years of disease burden and a higher probability of developing serious diabetes-related complications—complications that will threaten life expectancy, reduce quality of life for themselves and their families, and lower productivity during the prime years of their lives.

Most alarming is the increase in diabetes prevalence in children and adolescents.

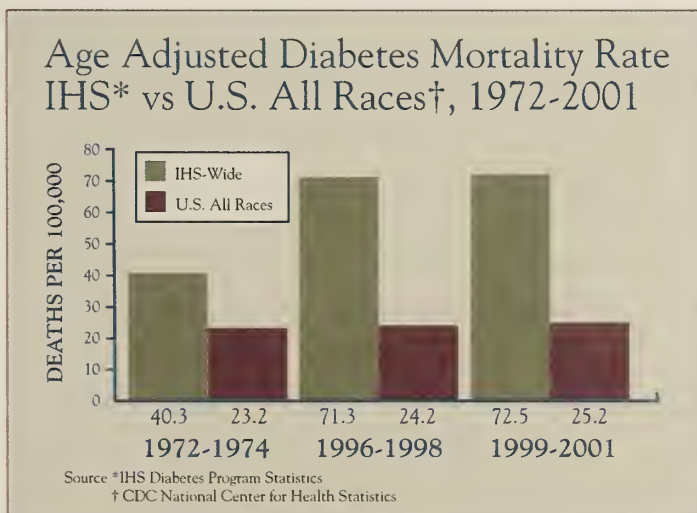


The IHS can now more accurately compare the prevalence of diabetes among AI/ANs compared to other racial and ethnic groups.

Diabetes Mortality

Diabetes mortality is reportedly three times higher in the AI/AN population than in the general U.S. population. Most experts agree, however, that true diabetes mortality is underestimated in national statistics for two reasons. First, many decedents with diabetes do not have diabetes listed on their death certificates. Second, AI/AN heritage is not always apparent on death certificates. For these two reasons, the actual death rate attributable to diabetes among AI/ANs is believed to be 4.3 times higher than in the general U.S. population.¹¹

Diabetes mortality is reportedly three times higher in the AI/AN population than in the general U.S. population.



The IHS can now more accurately measure diabetes mortality in AI/ANs over time and compared to other races.

APPENDIX

Epidemic of Type 2 Diabetes

Because AI/ANs have higher rates of diabetes, they also suffer from higher rates of long-term diabetes complications.

Complications of Diabetes

The problem of diabetes is made more complex by the fact that it leads to disabling and life-threatening complications that affect virtually every system of the body. Because AI/ANs have higher rates of diabetes, they also suffer from higher rates of long-term diabetes complications. AI/ANs also develop these complications sooner since they develop diabetes earlier in their life compared to the general U.S. population.

The chronically high levels of blood sugar that are associated with diabetes cause severe damage to the blood vessels—from the tiny blood vessels found in the eyes or kidneys to the major blood vessels that nourish the heart, brain, and extremities. Over time, the tissues nourished by these blood vessels are permanently damaged, resulting in diverse and numerous complications:¹²

- **Kidney disease**, or diabetic nephropathy, which can lead to kidney failure.
- **Diabetic eye disease**, or retinopathy, which can lead to blindness.
- **Heart** (cardiovascular) **disease**, including heart attack and heart failure.
- **Stroke** (cerebrovascular disease).
- Damage to the **nervous system**, or **neuropathy**. Peripheral neuropathy causes pain and loss of sensation, contributing to increased risk of limb infection, ulceration, and amputation. Autonomic neuropathy may lead to heart arrhythmias, poor blood pressure control, digestive dysfunction, and sexual dysfunction.
- **Dental** and oral complications, such as mucosal infections, periodontitis, salivary gland dysfunction leading to difficulty swallowing and speaking, and neuropathies such as burning tongue or mouth.
- **Pregnancy** complications for both mother and baby.

Complications that are classified as *microvascular complications* damage the small blood vessels of the body that nourish organs like the kidneys and eyes.

Microvascular complications are serious, debilitating, and often deadly. For example, from 1975 to 1984, kidney disease, or diabetic nephropathy, was the leading cause of non-traumatic death among the Pima Indians of Arizona. Rates of diabetes-related kidney failure in Southwest AI/ANs are six times higher than in the general U.S. population. Although more than three dozen reservation-based dialysis centers have been established, many AI/ANs living on reservations or in remote areas still travel great distances (e.g., more than one hour in each direction) to receive treatment. They are also less likely than Caucasians to receive a kidney transplant. Similarly, AI/ANs suffer

Microvascular complications are serious, debilitating, and often deadly.

disproportionately from diabetic eye disease. Some tribes have rates of diabetic eye disease that reach nearly 50%.¹³

Complications that are classified as *macrovascular complications* are responsible for the majority of diabetes-related deaths. These complications lead to cardiovascular disease, strokes, and limb and foot amputations, and they can shorten the average lifespan by up to 15 years.¹⁴ Cardiovascular disease, which refers to diseases involving the heart or blood vessels, is the leading cause of death for AI/ANs, and the rates are increasing.¹⁵ Even if other risk factors are not present, diabetes is a strong independent risk factor for cardiovascular disease. In AI/ANs, diabetes is the strongest risk factor for cardiovascular disease.¹⁶

Obesity

Overweight and obesity are found worldwide, and the prevalence of these conditions in the U.S. ranks high along with other developed nations.¹⁷ Obesity prevalence is particularly high in AI/ANs. In 1991, obesity prevalence was 13.8% for AI/AN males over the age of 18 years (compared to 9.1% for U.S. all races), and was 16.6% for AI/AN females over the age of 18 years (compared to 8.2% for U.S. all races).¹⁸ Obesity (Body Mass Index > 30) is a major risk factor for diabetes.

Over the last century, many AI/ANs have transitioned from traditional subsistence food sources and the activities required to hunt and harvest them to a “modern” or “western” lifestyle.¹⁹ Federal food programs, such as Food Distribution Programs on Indian Reservations (FDPIR) and food stamps, designed to decrease food insecurity (i.e., hunger), have contributed to the move away from traditional diets. Even today, access to quality foods, such as fresh fruits and vegetables, is limited or available only at a great distance due to the remoteness of many AI/AN communities. In addition, during these modern times, television and the media have influenced food choices. American households throughout the U.S., including AI/AN households, have increased their consumption of store-bought, convenience and prepared foods, as well as fast foods. The adoption of this westernized lifestyle has resulted in an increase in diets that are high in calories and fat and a decrease in physical activity. This combination of environmental factors and genetic susceptibility has resulted in high obesity rates in indigenous peoples throughout North America, as well as other indigenous populations throughout the world.²⁰

Complications that are classified as *macrovascular complications* are responsible for the majority of diabetes-related deaths.

Even today, access to quality foods, such as fresh fruits and vegetables, is limited or available only at a great distance due to the remoteness of many AI/AN communities.

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B. Scientific Evidence for the Prevention of Diabetes

Recent studies indicate that it is possible to prevent or delay type 2 diabetes. These studies have brought hope to AI/AN communities that the epidemic of diabetes can be reversed.

Results of the Diabetes Prevention Program

In 2001, the results of the Diabetes Prevention Program demonstrated that the onset of diabetes can be prevented or delayed. The Diabetes Prevention Program was a randomized, controlled trial funded by the NIH. The goal of the study was to determine if diabetes could be prevented in overweight people who are at high-risk for developing diabetes. Overall, 3,234 overweight participants who had impaired glucose tolerance, now called pre-diabetes, were included in the study. Forty-five percent of the participants were from ethnic minority groups, including 171 AI/ANs. The study found that diet and exercise resulting in a 5% to 7% weight loss lowered the incidence of diabetes by 58%. Participants lost weight by reducing fat and calories in their diets and by exercising (most participants chose walking) at least 30 minutes a day, five days a week. The same study found that taking the oral diabetes drug, metformin (Glucophage®), reduces diabetes risk by 31%. Because the participants had pre-diabetes when they began the Diabetes Prevention Program, the study showed that modest lifestyle changes through improved diet and increased exercise can effectively turn back the clock, returning individuals to healthy levels of blood sugar and preventing diabetes.²¹

Recent studies have brought hope to AI/AN communities that the epidemic of diabetes can be reversed.

Results of Other Diabetes Prevention Studies

Several other studies conducted in the U.S. and other countries indicate that lifestyle and medical interventions can effectively prevent diabetes:

- The Diabetes Control and Complications Trial²², Kumamoto Study²³, and United Kingdom Prospective Diabetes Study²⁴ indicate that prompt and intensive medical treatment can reduce the onset of diabetes related complications.
- The United Kingdom Prospective Diabetes Study found that lower A1C levels resulted in a lower incidence of retinopathy, nephropathy, amputations, cataracts, congestive heart failure, myocardial infarctions, and stroke.²⁵

Lower A1C levels resulted in a lower incidence of retinopathy, nephropathy, amputations, cataracts, congestive heart failure, myocardial infarctions, and stroke.

- The Da Qing Impaired Glucose Tolerance and Diabetes Study found that people with impaired glucose tolerance who underwent a lifestyle intervention consisting of diet and exercise reduced their risk of diabetes.²⁶
- The Finnish Diabetes Prevention Study found that lifestyle changes aimed at reducing weight and fat intake, while increasing fiber intake and physical activity, resulted in a 58% reduction in the risk of developing diabetes in individuals with impaired glucose tolerance.²⁷
- Researchers at the National Institute of Diabetes and Digestive and Kidney Diseases investigating the association between breastfeeding and diabetes in the Pima Indians found that exclusive breastfeeding for the first two months of life is associated with a significantly lower rate of subsequent diabetes.²⁸
- The Nurses' Health Study followed nearly 85,000 female nurses from 1980 to 1996 to examine the combined effects of dietary and lifestyle factors on the risk of developing diabetes in females. The study found that the vast majority of cases of diabetes could be prevented by the adoption of a healthy lifestyle that included exercise, a healthy diet, and abstinence from smoking and alcohol use.²⁹ A related study examined the role of moderate-intensity activities, such as walking, in reducing the risk of developing diabetes. The study found that a faster walking pace was associated with decreased risk of developing diabetes. The data suggest that greater physical activity level is associated with a substantial reduction in risk of diabetes, including physical activity of moderate intensity and duration.³⁰

Despite the alarming trends and formidable challenges of combating diabetes, the results of the Diabetes Prevention Program and other prevention studies have given our nation hope that we can effectively combat diabetes. Science once told us we could **treat** diabetes, but now science says that we can **prevent** diabetes.

Investigating the association between breastfeeding and diabetes in the Pima Indians found that exclusive breast-feeding for the first two months of life is associated with a significantly lower rate of subsequent diabetes.

The data suggest that greater physical activity level is associated with a substantial reduction in risk of diabetes, including physical activity of moderate intensity and duration.

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"Diabetes is a big problem on the reservation. If we can do something to help the children so that they take care of themselves without even thinking, that's our goal."

Lori Lossie (Eastern Band of Cherokee)

Appendix II

THE CHRONIC CARE MODEL

The Special Diabetes Program for Indians enabled the Indian health system to further improve how it deals with diabetes as a chronic disease. The Special Diabetes Program for Indians funding has allowed many programs to implement basic elements of quality diabetes care that were not present prior to the funding. The IHS National Diabetes Program has promoted a “best practices” approach to preventing and treating diabetes during the Special Diabetes Program for Indians initiative, and as a result, programs have implemented new activities that address a variety of aspects of addressing diabetes as a chronic disease. The IHS National Diabetes Program used the Chronic Care Model as an evaluation tool to assess how the Indian health care system has implemented essential elements of quality diabetes care as a result of the Special Diabetes Program for Indians.

The Chronic Care Model was developed in the past decade by Group Health Cooperative of Puget Sound, WA with funding from the Robert Wood Johnson Foundation to help health systems develop the basic elements for improving care at the community, health system, provider, and patient levels.¹ The IHS National Diabetes Program has actually been implementing components of this national model for years, but the Special Diabetes Program for Indians has helped expand the number of programs that have been able to better provide this type of quality diabetes care.

Science: The Chronic Care Model, when implemented through multifaceted interventions, can improve process and outcome measures for diabetes.² Using the Chronic Care Model has been shown to reduce short-term costs through reduced hospital admissions, emergency department visits, and physician consultations in people with diabetes.³ Other studies have shown that improved glycemic control through implementing elements of the model is associated with short-term reductions in hospital stay and reduced hospital and outpatient use compared with usual care.⁴

The IHS National Diabetes Program used the Chronic Care Model as an evaluation tool to assess how the Indian health care system has implemented essential elements of quality diabetes care as a result of the Special Diabetes Program for Indians.

APPENDIX

*The Chronic
Care Model*

A. Components of the Chronic Care Model

The essential elements of a health care system that encourage high quality care for chronic diseases include the following:

1. Community Resources and Policies
2. Health System Organization
3. Self Management Support
4. Delivery System Design
5. Decision Support
6. Clinical Information Systems

Chronic Care Model



Implementation of these elements – at the community, organization, provider, and patient levels – is associated with better outcomes of chronic disease care.

B. Evaluation using the Chronic Care Model

The Special Diabetes Program for Indians enabled the Indian health system to serve as an example of a large health system that includes most strategies recommended in the high quality care of individuals with chronic conditions. A recent review of the Special Diabetes Program for Indians grant program using the Chronic Care Model's *Assessment of Chronic Illness Care, Version 3*, revealed that the Special Diabetes Program for Indians and the IHS National Diabetes Program scored in the highest level for most components of the model (Table 1).

Table 1.
Evaluation of the Indian Health System
using the Chronic Care Model.

A description of each component of the Chronic Care Model, how the Special Diabetes Program for Indians helped implement elements in each component, and examples or data are presented below.

Chronic Care Model Components	Description	SDPI Program Activities	Examples or Data
COMMUNITY RESOURCES AND POLICIES	Health system links and partners with community and regional resources	SDPI primarily funded tribes, and enabled greater partnerships between IHS programs and tribal communities.	258 (81%) of the 318 grant programs are managed by tribes Program reports of participation of tribal leaders and tribal health directors in planning and implementation of diabetes activities increased from 14% before the grants to 73% in 2002
		SDPI enabled more local community partnerships	Location community partnerships for diabetes activities increased with: <ul style="list-style-type: none"> • Tribal recreation wellness programs • Tribal health boards/councils • Social services programs • Tribal economic, cultural, religious programs or organizations
		SDPI enabled more partnerships with outside organizations	Partnerships with outside organizations increased: <ul style="list-style-type: none"> • Local schools systems • Colleges or universities • Local ADA affiliates • State and local cooperative extension services • State diabetes control programs
		SDPI enabled more national partnerships	National collaborations and partnerships were formed: <ul style="list-style-type: none"> • Federal agencies • AI/AN organizations • Diabetes expert organizations • Academic institutions • Other organizations
		SDPI led to the creation of the Tribal Leader Diabetes Committee, a group of tribal leaders focusing on addressing diabetes	TLDC formed in 1998, quarterly meetings since then, consultation on distribution of grant funds each year, partnerships with federal agencies and organizations, advisory on diabetes related activities, national advocacy

Chronic Care Model Components	Description	SDPI Program Activities	Examples or Data
HEALTH SYSTEM ORGANIZATION	Leadership, organizational strategy, and chronic care promotion	<p>IHS National Diabetes Program has promoted coordinated care on all levels since 1979 through the national office, Area Diabetes Consultants, and network of diabetes programs</p> <p>SDPI promoted chronic care according to standards through technical assistance and the sharing of Best Practices</p> <p>Tribal Leaders Diabetes Committee promotes chronic care</p>	<p>IHS National Diabetes Program with 11 staff, 13 Area Diabetes Consultants, and 19 model programs, manages the grant program for 318 grantees, sets standards of care, promotes comprehensive care of diabetes with a public health approach</p> <p>Eight Regional Meetings allowed programs to share information and obtain technical assistance</p> <p>TLDC was the first tribal group to meet and work on a chronic disease</p>

Chronic Care Model Components	Description	SDPI Program Activities	Examples or Data
SELF MANAGEMENT SUPPORT	Self management services provided and documented	<p>Diabetes education services documented</p> <p>SDPI allowed programs to implement and enhance diabetes education services and provide a variety of new types of diabetes education</p> <p>SDPI enabled programs to adopt National Standards for diabetes Education Services</p> <p>SDPI enabled IHS to apply and receive deeming authority for certification by CMS for diabetes education reimbursement</p>	<p>IHS Diabetes Care and Outcomes Audit documents diabetes education services received each year</p> <p>Availability of organized diabetes education programs increased from 27% before the grants to 90% in 2002</p> <p>Types of diabetes education expanded since the SDPI:</p> <ul style="list-style-type: none"> • Diabetes support groups • Community and behavioral health services • Culturally appropriate diabetes education materials • TV, radio, PSAs, written materials, videos, school based curricula • Community based diabetes education was provided – health fairs, traditional methods, diabetes camps, group classes, workshops • Settings for diabetes education included clinics, groups and support groups • Staged diabetes management • Case management <p>Diabetes education staff were hired</p> <ul style="list-style-type: none"> • 58% of diabetes grant programs hired diabetes educators • Availability of RDs, PHNs, Medical Nutrition Services, and nutrition activities for family members increased <p>88 Programs completed the IHS Integrated Standards for Diabetes Education rankings (AHRQ Project) – of those, 79 ranked level 1 or less, 4 ranked level 2, and 5 ranked level 3.</p> <p>Level 2 programs can apply to IHS to obtain certification for reimbursement from CMS for diabetes education services</p>

Chronic Care Model Components	Description	SDPI Program Activities	Examples or Data
DELIVERY SYSTEM DESIGN	Providers organized to proactively provide care via teams, care system	SDPI enabled Indian health programs and tribes to develop or enhance a team-based system of care	<p>Use of key elements of care increased with the SDPI:</p> <ul style="list-style-type: none"> • Diabetes registries (98%) • Diabetes teams (94%) • Diabetes clinics (69%) • Diabetes flowsheets (77%) <p>Multidisciplinary team staff were hired:</p> <ul style="list-style-type: none"> • RDs/PHNs (49%) • Diabetes educators (58%) • Medical specialists (podiatrists = 40%) • Physical activity specialists (40%) <p>Availability of routine examinations and laboratory tests increased:</p> <ul style="list-style-type: none"> • Foot examinations • Eye examinations • Dental examinations • A1C testing • Lipid testing • Tests for microalbuminuria • Urinalysis
Chronic Care Model Components	Description	SDPI Program Activities	Examples or Data
DECISION SUPPORT	Care organized around guidelines	SDPI enabled the IHS Standards of Diabetes Care (Guidelines) to be further implemented in Indian health programs	<p>IHS Standards of Care were updated</p> <p>Staged Diabetes Management was used by 47% of the diabetes grant programs</p> <p>14 Best Practices models were developed</p> <p>IHS Integrated Standards for Diabetes Education Programs were updated in 2002</p> <p>Availability of diabetes related continuing education programs increased for health professionals and parahealth professionals</p>

Chronic Care Model Components	Description	SDPI Program Activities	Examples or Data
CLINICAL INFORMATION SYSTEMS	Tracking patient care through registries, documentation, and feedback of ongoing care	<p>SDPI enabled more programs to develop registries, use the IHS Diabetes Care and Outcomes Audit, and track national data through the annual grantee survey</p> <p>A compendium of all program activities is in development</p> <p>Funding was used to improve diabetes data, including baseline data for prevalence, mortality, and to track complications</p>	<p>Programs increased their use of registries and flowsheets to track patient care</p> <p>More programs participated in the IHS Diabetes Care and Outcomes Audit since the SDPI:</p> <ul style="list-style-type: none"> • 239 programs participated in the 2002 Audit representing 19,999 patients • Reports are available for feedback on the local, Area, or national levels • Intermediate outcomes of care have improved since the SDPI – A1C, blood pressure, lipid levels, cardiovascular risk factors, elements of care to prevent kidney disease <p>SDPI funding was used in each IHS Area to improve prevalence and mortality data</p> <p>The IHS Diabetes Data Warehouse was established to enable tracking of long-term complications using IHS RPMS data</p>

Appendix III

COLLABORATIONS AND PARTNERSHIPS

The Indian Health Service (IHS) National Diabetes Program developed and built upon partnerships and collaborations with federal and private organizations as a result of the Special Diabetes Program for Indians. These partnerships with organizations involved in diabetes-related programs and activities added to the already extensive Indian health system diabetes network. This chapter highlights the many new and strengthened partnerships and collaborations that resulted from the Special Diabetes Program for Indians.

A. Partnerships with Department of Health and Human Services Agencies

Centers for Medicare and Medicaid Services

IHS National Diabetes Program Became a Deeming Entity for Diabetes Education Certification

In March 2002, the Centers for Medicare and Medicaid Services approved the IHS National Diabetes Program as a deeming entity for diabetes education recognition. As a result, the IHS National Diabetes Program, with agency and tribal leader support, established an IHS Integrated Diabetes Education Recognition Program. The program certifies Indian health diabetes education programs, allowing them to seek Medicare reimbursement for diabetes education. Thus far, eight programs have been certified by the IHS National Diabetes Program, and several new applications are under review.

Medical Nutrition Therapy and Diabetes Self-Management Training for Medicare

The IHS National Diabetes Program disseminated information on Medical Nutrition Therapy and Diabetes Self-Management Training for Medicare beneficiaries who have diabetes or kidney disease to IHS, tribal, and urban Indian health programs. The IHS National Diabetes Program also provided technical assistance and consultation to IHS, tribal, and urban Indian programs on the following third party billing activities:

In March 2002, the Centers for Medicare and Medicaid Services approved the IHS National Diabetes Program as a deeming entity for diabetes education recognition.

APPENDIX

Collaborations and Partnerships

- Electronic billing
- Medical records documentation
- Claims tracking
- Reimbursements
- Examination of the outcomes and cost-effectiveness of services

These activities will benefit tribes and tribal communities by increasing access to diabetes education, nutrition services, and other primary prevention activities.

National Institutes of Health

National Diabetes Education Program

The National Diabetes Education Program (NDEP) is a program sponsored by the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC). NDEP aims to improve the treatment and outcomes for people with diabetes, to promote early diagnosis, and to prevent the onset of type 2 diabetes. The Director of the IHS National Diabetes Program served as a member of the NDEP Steering and Evaluation committees. In addition, IHS National Diabetes Program staff served on the NDEP American Indian Campaign, Diabetes Prevention Program Lifestyle Tools, and the Diabetes in Children and Adolescents workgroups. The IHS National Diabetes Program also distributed NDEP materials to IHS, tribal, and urban Indian programs.

The Diabetes Prevention Program

The NIH sponsored the Diabetes Prevention Program (DPP), which demonstrated that type 2 diabetes can be prevented or delayed in high-risk groups, including American Indians and Alaska Natives (AI/ANs). The IHS National Diabetes Program disseminated and translated information on the DPP for the diabetes grant programs to help them expand upon their diabetes prevention efforts. The Director of the IHS National Diabetes Program served as a member of the Translation Committee of the DPP.

Diabetes Education in Tribal Schools

In FY 2001, at the request of the Tribal Leaders Diabetes Committee (TLDC), the Diabetes Education in Tribal Schools project was developed to encourage AI/AN students to pursue careers in biomedical research and diabetes. The IHS National Diabetes Program collaborated with the National Institute of Diabetes and Digestive and Kidney Diseases, CDC, and American Indian Higher Education Consortium to develop a multicultural, science-based diabetes education curriculum for AI/AN students from kindergarten through high

school. By engaging AI/AN youth in the biomedical sciences at an early age, the IHS National Diabetes Program hopes that AI/AN youth will be motivated to work toward a career in health care and research.

Diabetes Mellitus Interagency Coordinating Committee

The Director of the IHS National Diabetes Program serves as a member of the Diabetes Mellitus Interagency Coordinating Committee (DMICC). The committee includes representatives from Federal departments and agencies whose programs are relevant to diabetes and its complications. The DMICC membership includes representatives of 23 Federal organizations, including the IHS National Diabetes Program, and liaison representatives from the American Diabetes Association and the Juvenile Diabetes Research Foundation.

The DMICC was authorized by Public Law 93-354 and established in the fall of 1974. It facilitates cooperation, communication, and collaboration among agencies that conduct or support diabetes-related activities. These activities may range from support for biomedical research to direct provision of health care services. Current DMICC meetings and projects focus on bringing together in-depth information from the varied programs represented by the member organizations, serving as the catalyst for the initiation of projects, and guiding the progress of projects involving several agencies. The DMICC publishes an annual report that summarizes the diabetes-related activities of the organizations represented on the DMICC. The IHS National Diabetes Program has presented data from the Special Diabetes Program for Indians to the DMICC on several occasions for discussion and guidance.

Diabetes Research and Training Centers

The Diabetes Research and Training Centers (DRTC) are centers of diabetes excellence for diabetes translation funded by the NIH and located at universities throughout the U.S. DRTC professionals at the University of Indiana and the University of Michigan have provided guidance and input on the Special Diabetes Program for Indians to the IHS National Diabetes Program and the TLDC.

Head Start Bureau

Since 1999, the IHS National Diabetes Program has coordinated an obesity and diabetes prevention initiative targeting Head Start children (up to five years old), Head Start families, Head Start staff, and AI/AN communities. Five tribal Head Start pilot sites, in collaboration with their respective community health partners and the IHS National Diabetes Program, developed obesity and diabetes prevention interventions in their local communities. Each of the pilot sites developed and implemented a community action plan that focused on

healthy eating, physical activity, healthy behavior, and community partnerships. The IHS National Diabetes Program is expanding the initiative to include a breastfeeding initiative for Early Head Start programs.

Centers for Disease Control and Prevention Division of Diabetes Translation

CDC Epidemiologist Assigned to the IHS

The CDC Division of Diabetes Translation provided diabetes epidemiologic support to the IHS National Diabetes Program through one full-time epidemiologist. The CDC epidemiologist automated the program's prevalence and complications surveillance system and calculated and adjusted diabetes prevalence data from 1999 through 2001. The IHS National Diabetes Program disseminated this data to the TLDC, IHS Area Directors, Area Diabetes Consultants, and others.

National Diabetes Prevention Center

The IHS National Diabetes Program and the TLDC worked with the CDC Division of Diabetes Translation in FY 2001 to restructure the National Diabetes Prevention Center (NDPC) in Gallup, New Mexico.

The goal of the restructuring efforts was to ensure that the NDPC provided diabetes outreach, information, and technical assistance to tribes throughout the U.S. To achieve this goal, the NDPC, IHS National Diabetes Program, TLDC, and CDC have developed the following:

- A variety of tools, resources, curricula, and data approaches to assist diabetes care and prevention efforts.
- A series of reports about information technology, community diabetes care, prevention planning activities, and educational resources.
- The *Health for Native Life* magazine, which is a publication developed for members of tribal communities who have diabetes and their families.

The NDPC also established the Tribal College Initiative to address President Bush's Initiative on Tribal Colleges and Universities, which directed federal agencies to work in partnership with tribal colleges and universities. Partners in the Tribal College Initiative included the National Indian Council on Aging, American Indian Higher Education Consortium, Association of American Indian Physicians, Native American Diabetes Program at the University of New Mexico, NIH, and Department of Health and Human Services Office of Minority Health.

State Diabetes Control Programs

Several IHS Area Diabetes Programs formed partnerships with CDC's State Diabetes Control Programs (DCP) to share skills, resources, and training. For example, in 1997, the Montana DCP, the IHS Billings Area Diabetes Program, and each of the diabetes grant programs in Montana, formed partnerships to identify the burden of diabetes among Montana AI/ANs, evaluate the effectiveness of diabetes prevention activities, and identify opportunities to improve care for people with diabetes. The Montana DCP provided technical and epidemiologic support to help the diabetes grant programs address surveillance, health system, and health communications.

B. Partnerships with American Indian and Alaska Native Organizations

American Indian Higher Education Consortium

The IHS National Diabetes Program collaborated with the American Indian Higher Education Consortium (AIHEC) to build capacity and infrastructure for diabetes training and program activities at tribal colleges and universities. As described earlier, the IHS National Diabetes Program also collaborated with AIHEC, as well as the National Institute of Diabetes and Digestive and Kidney Diseases and the CDC, to develop a program to encourage AI/AN youth to pursue careers in biomedical research and health science.

National Indian Council on Aging

The IHS National Diabetes Program formed a partnership with the National Indian Council on Aging (NICOA) to translate and disseminate diabetes data to tribal communities and tribal leaders. The partnership:

- Developed the Diabetes Monograph Series to address diabetes and other health issues in AI/AN communities. Recent issues included *A Critical Issue: Blood Sugar Control*; *Diabetes among Alaska Natives: An Emerging Epidemic*; *What Kills Indian Elders*; and *Lung Cancer Deaths and Smoking among American Indians*.
- Developed a newsletter series titled CLEAR VISIONS, which provided updates on the Special Diabetes Program for Indians to the diabetes grant programs.
- Collaborated with Cimarron Medical Informatics to automate the IHS Diabetes Care and Outcomes Audit.
- Produced a video titled *Diabetes and Indian Elders*, which shares Medicare beneficiary information with the AI/AN elder population.

Association of American Indian Physicians

In 1998, the CDC awarded a grant called the "National Minority Organizations, Strategies for the Prevention and Control of Diabetes," to the Association of American Indian Physicians (AAIP). The grant allowed AAIP to launch and coordinate the NDEP American Indian Campaign. The purpose of the campaign was to provide culturally-appropriate diabetes education and awareness materials to AI/AN communities and the diabetes grant programs. The IHS National Diabetes Program served on the NDEP American Indian Campaign Workgroup to help develop culturally-appropriate diabetes messages and provide diabetes expertise and guidance.

National Indian Health Board

The National Indian Health Board (NIHB) has a long history of collaboration with the IHS. The NIHB advocated for the passage of the Balanced Budget Act of 1997 and the Consolidated Appropriations Act of 2001. In addition, the NIHB formed partnerships with the Juvenile Diabetes Research Foundation and the American Diabetes Association to advocate for the Special Diabetes Program for Indians. Two former and the current Chairperson of the NIHB serve on the TLDC.

American Indian Epidemiology Centers

The IHS National Diabetes Program collaborated with several tribal epidemiology centers to promote diabetes data improvement at the local level. For example, the Northwest Portland Area Indian Health Board, located in Portland, Oregon, used Special Diabetes Program for Indians data improvement funds to establish the Western Tribal Diabetes Project in 1998. The project developed and implemented a sustainable and systematic approach to capture diabetes data among AI/AN communities located in the Northwest and California by providing technical assistance on data improvement activities. Tribal epidemiology centers in the Nashville and Bemidji Areas are using data improvement funds to develop similar types of projects. In addition, the Seattle Indian Health Board, located in Seattle, Washington, used data improvement funds to develop and produce a web-based diabetes survey and audit tool for diabetes grant programs that delivered non-clinical services. The IHS National Diabetes Program also collaborated with the tribal epidemiology centers to compile the Special Diabetes Program for Indians Compendium Report, which documented the individual activities and accomplishments of 66% of the diabetes grant programs.

Urban Indian Nurses Association

Many members of the Urban Indian Nurses Association played a major role in coordinating the diabetes grant programs at their urban Indian health centers. The IHS National Diabetes Program provided diabetes-related information and programmatic guidance to this association.

C. Partnerships with Diabetes Expert Organizations

Juvenile Diabetes Research Foundation

The Juvenile Diabetes Research Foundation (JDRF) is the world's leading non-profit, non-government diabetes research funding organization. The JDRF was established to help define research priorities and to lead advocacy efforts in research for the prevention of juvenile diabetes and diabetes-related complications. The IHS National Diabetes Program and the JDRF collaborated on efforts, such as the National Diabetes Education Program, to educate the public on diabetes its complications. The JDRF also served as an important advocate for the Special Diabetes Program for Indians.

American Diabetes Association

The American Diabetes Association (ADA) is the nation's leading non-profit health organization providing diabetes information, advocacy, and research. The mission of the ADA is to prevent and cure diabetes, and to improve the lives of all people affected by diabetes. The IHS National Diabetes Program collaborated with the ADA, as well as the University of New Mexico Native American Diabetes Program, to launch and support a national AI/AN outreach campaign called *Awakening the Spirit: Pathways to Diabetes Prevention and Control*. This campaign provided tribal communities and the diabetes grant programs with a research-based, community diabetes education curriculum and information on the resources and networking opportunities available through the ADA. The ADA also advocated for the Special Diabetes Program for Indians at the Congressional level.

Joslin Diabetes Center

Joslin Vision Network Teleophthalmology Project

In FY 2002, Congress provided \$1.5 million to address diabetic retinopathy among AI/ANs. In collaboration with the Joslin Diabetes Center, the IHS National Diabetes Program developed a project to evaluate AI/ANs for diabetic retinopathy using the Joslin Vision Network (JVN). The JVN is a telemedicine system that uses low-level illumination and no-pupil dilation to diagnose diabetic retinopathy. IHS, tribal, and urban Indian clinics can electronically send retinal images to a reading center, which returns analyses of the level of diabetic retinopathy to the clinics.

The IHS National Diabetes Program deployed imaging sites at the Phoenix Indian Medical Center, Sells Public Health Service Indian Hospital, Tuba City Indian Medical Center, Parker Indian Hospital, Hopi Health Care Center, and the Chief Andrew Isaac Health Center. Certified readers at the IHS/JVN National Reading Center in Phoenix evaluated the retinal images acquired from these sites. Since entering its clinical phase, the program has evaluated more than 1,500 patients that had not met the prescribed level of care. Between ten and fifteen additional sites will be deployed during the next year at locations throughout Indian Country.

Comprehensive Diabetes Management Program

The IHS National Diabetes Program collaborated with the Joslin Diabetes Center in development of the Comprehensive Diabetes Management Program (CDMP). The CDMP is a web-based system that uses the case management model to track diabetes care and education. The CDMP includes clinical assessment, behavioral assessment, and education and reinforcement modules. The goal of this project is to integrate the CDMP with the IHS electronic medical record.

American Association of Diabetes Educators

In 1999, the American Association of Diabetes Educators (AADE) formed a taskforce to explore the role of the lay health worker (i.e., paraprofessionals, such as community health representatives and community health aides) in diabetes education. The taskforce included representatives from a variety of health care organizations including the IHS National Diabetes Program, which hosted the *Lay Health Workers Summit* in April 2002.

American Academy of Pediatrics

The IHS National Diabetes Program served as the IHS liaison to the American Academy of Pediatrics (AAP) Committee on Native American Child Health. In partnership with the IHS National Diabetes Program, the committee:

- Offered its expertise to individuals and groups concerned about issues facing AI/AN children.
- Conducted annual site visits to IHS Areas.
- Developed programs that support healthy lifestyles and optimal physical, mental, and social health in AI/AN children.
- Identified challenges in AI/AN child health care and suggested innovative ways to solve them.

- Developed guidelines for the prevention, identification, and treatment of diabetes among AI/AN children. The IHS National Diabetes Program will disseminate these guidelines through the extensive Indian health diabetes network once they are published.

The AAP widely circulated information on the breastfeeding intervention of the Phoenix Indian Medical Center's Diabetes Center of Excellence through its *Breastfeeding: Best for Baby and Mother* newsletter. The AAP distributed the newsletter to AAP Chapter Breastfeeding Coordinators, members of the AAP Breastfeeding Promotion in Pediatric Office Practices program, and members of the AAP Provisional Section on Breastfeeding.

The IHS National Diabetes Program also served on the AAP Indian Health Special Interest Group. The mission of the group is to identify, prioritize, and promote education and training opportunities related to AI/AN health issues. In the fall of 2002, the group sponsored an education program on childhood obesity and diabetes in AI/AN youth at the *AAP Annual Conference and Exhibition Meeting* in Boston.

International Diabetes Center

The International Diabetes Center based in Minneapolis, Minnesota, runs an outpatient clinic for people with diabetes, trains and educates health care professionals who care for people with diabetes, develops methods to improve diabetes screening practices, and educates the public about diabetes.

The Center has been an important partner for the IHS National Diabetes Program in several ways. A diabetes expert from the Center served on the original Indian Health Diabetes Workgroup, which was formed by the Director of the IHS in 1997 to develop recommendations on the distribution of funds from the Special Diabetes Program for Indians. The Center provided training and technical assistance to AI/AN communities on the use of Staged Diabetes Management in the clinical treatment of people with diabetes. The Center also developed a complete diabetes education curriculum, called Type 2 Diabetes BASICS, which has been utilized by many AI/AN communities.

MacColl Institute of Group Health Cooperative of Puget Sound

The MacColl Institute of the Group Health Cooperative of Puget Sound developed the Chronic Care model to help health systems develop the basic elements necessary to improve care at the community, health system, provider, and patient levels. The IHS National Diabetes Program used the Chronic Care Model to evaluate the effectiveness of its systems of care in dealing with diabetes as a chronic disease. Although the IHS National Diabetes Program

APPENDIX

Collaborations and Partnerships

has successfully implemented elements of the Chronic Care Model to improve diabetes care and management since the 1980s, the Special Diabetes Program for Indians allowed more Indian health programs, particularly tribal programs, to build the infrastructure needed to implement the model. The Special Diabetes Program for Indians also enabled these programs to measure their effectiveness in implementing the system changes recommended by the model.

D. Partnerships with Academic Institutions

University of New Mexico

Native American Diabetes Project

The Native American Diabetes Project (NADP) at the University of New Mexico developed a community-based diabetes curriculum and training program called *Strong in Body and Spirit*. NADP provided training and assistance to the diabetes grant programs.

Earth Data Analysis Center

Using information provided by the IHS National Diabetes Program, the Earth Data Analysis Center at the University of New Mexico used Geographic Information Systems (GIS) mapping technology to map the sites of the diabetes grant programs based on location and funding amount.

University of Arizona College of Public Health

The IHS National Diabetes Program collaborated with the University of Arizona College of Public Health and other organizations to coordinate the *Diabetes Prevention in American Indian Communities: Turning Hope Into Reality* Conference, held December 11–13, 2002, in Denver, Colorado. Yvette Roubideaux, MD, MPH, Assistant Professor in the University of Arizona College of Public Health, coordinated the conference and planning committee.

The conference celebrated and disseminated the results of the Diabetes Prevention Program, and highlighted the Special Diabetes Program for Indians. Each plenary session and the majority of workshops showcased the diabetes prevention and treatment activities implemented by the diabetes grant programs. Over 700 diabetes grant program coordinators and staff members, health professionals, and tribal leaders attended the conference.

University of Southern California

The IHS National Diabetes Program collaborated with the Statistical Consultation & Research Center Department of Preventative Medicine at the University of Southern California to integrate statistical, epidemiological and computing resources to conduct public health evaluation of the SDPI.

E. Partnerships with Other Organizations and Agencies

U.S. Department of Agriculture

The IHS National Diabetes Program and the U.S. Department of Agriculture Special Nutrition Programs developed intervention projects to address the rising prevalence of overweight, obesity, and diabetes in AI/AN children and youth. The two agencies are currently formulating interagency agreements that will enable them to implement the interventions.

"Diabetes is in our family. We eat a lot of fruits and vegetables. Our son doesn't eat much candy. And, he's always running around, always active. I hope it will help him to prevent diabetes."

Shay Jaramillo (Isleta Pueblo)



APPENDIX

*Collaborations
and Partnerships*

Appendix IV
INDIAN HEALTH
BEST PRACTICE MODELS

APPENDIX

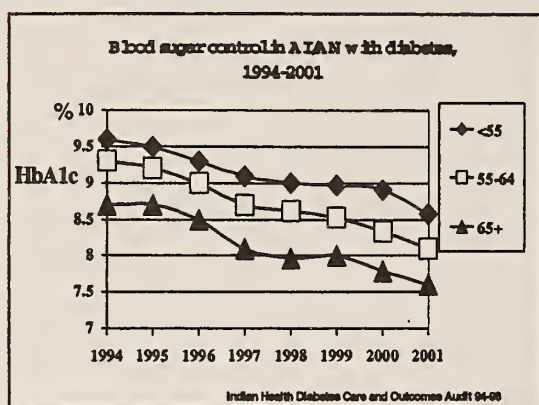
*Best Practice
Models*

Indian Health Best Practice Model

Basic Diabetes Care and Education-A Systems Approach

Why is this important?

Indian health and national studies show that diabetes programs using a systems approach to diabetes care and education can make a difference! Indian health diabetes programs have helped define the elements that point to quality diabetes care and education systems within American Indian/Alaska Native communities. A systems approach includes case management, information management, diabetes team, diabetes clinics and protocols, self-care management education, professional training, and resources for care of diabetes complications. Programs looking to improve any part of the way they deliver care and education can use the systems approach.



What measures are used?

► **The Diabetes Quality Improvement Project (DQIP)** is a national diabetes performance and outcome measurement set. DQIP will help health care systems across the U.S. improve diabetes care.

► **Indian Health Diabetes Care and Outcomes Audit** is very similar to the DQIP measures. The graph shows a steady improvement in blood sugar control in Indian health patients with diabetes (lower HbA1c means better blood sugar control). Diabetes teams who improve systems of care will see positive outcomes.

Basic Diabetes Care and Education

- **Assess your local diabetes care and education programs. What types and level of services are you providing? Does the diabetes team accept diabetes care and education standards?**
- **Does your clinic participate in the Diabetes Care and Outcomes Audit? How do the audit measures compare with the Indian Health trends, DQIP measures and Healthy People 2010 objectives? What system improvements can the diabetes team make?**

You may find that your program wants to modify or create new systems of diabetes care and education. Here are some things to consider:

- What elements of medical care do you provide in your program? What kinds of diabetes care systems are in place? What systems would you like to modify or add?
- Do you have staffing for the services you would like to provide? Does your program use a team approach to care? Is training provided for team members on a regular basis?
- Assess your diabetes self-management education program. Does it follow a defined curriculum? Does it teach coping skills? Does it offer support groups?
- Consider using the *Integrated Diabetes Education and Clinical Standards for American Indian and Alaska Native Communities* to assess your local diabetes care and education programs. This document will help you assess your program according to levels and determine what is working and where improvements are needed. Certification is now available that allows your program to receive Medicare reimbursement for eligible patients.

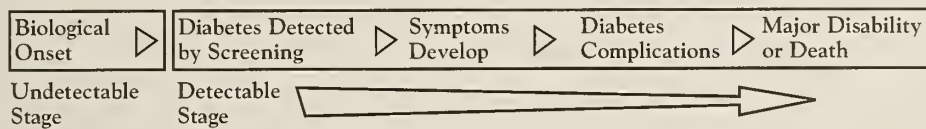
Indian Health Best Practice Model

Diabetes Screening Programs

Why is this important?

Type 2 diabetes has reached epidemic proportions in American Indian and Alaska Native (AI/AN) communities. AI/AN have nearly three times greater chance of dying from diabetes and its complications than non-Hispanic whites. Yet, many people with diabetes, about 33% according to national estimates, remain undiagnosed. Blood vessel damage from high blood sugar can begin before diabetes is diagnosed, leading to early problems with the eyes, nerves, kidneys, and heart.

Stages Important to screening for diabetes. Early screening and treatment can help reduce the risk of diabetes complications



What do we know?

- ▶ Major risk factors for type 2 diabetes such as a family history of diabetes, obesity, impaired glucose tolerance, and a history of gestational diabetes are well known, and the criteria for diagnosis of diabetes are established.
- ▶ A large clinical study, the Diabetes Prevention Program (DPP), was ended a year early in July 2001. The purpose of this study was to find out if people at high risk for type 2 diabetes with a condition known as prediabetes could decrease or delay the onset of diabetes through lifestyle changes and/or use of medicine. Participants who made lifestyle changes reduced their risk of getting type 2 diabetes by **58%**. Those on metformin, a medicine used to treat diabetes, reduced their risk of getting type 2 diabetes by **31%**.
- ▶ A recent study in Finland also showed that healthy lifestyles changes reduced the chance of getting type 2 diabetes by 58%.
- ▶ The **Healthy People 2010** objective advises that 80 percent of adults aged 20 years and older are screened for diabetes.

Diabetes screening in your community

- ▶ Find out the kinds of screening programs and methods operating in your community. Can you make any improvements?
- ▶ Do your screening programs include diabetes awareness and education?

Your program may want to develop or improve a diabetes-screening program. Here are some things to consider:

- ▶ Find out acceptable methods and approaches for screening in your community. Work with your tribal administration and health care providers to set up appropriate screening programs.
- ▶ Screening for pre-diabetes in your community may best be done through the use of a risk assessment questionnaire, prior to subjecting your patients to blood testing.
- ▶ Facilitate and ensure access to screening services.
- ▶ Provide education to your community about the symptoms of and risk factors for diabetes and the importance of early diagnosis. Involve community leaders in the process.
- ▶ Develop a system for tracking and providing follow-up for people with abnormal screening results or with one or more risk factors for diabetes.
- ▶ Develop a complete program including screening for diabetes, and screening for other factors that contribute to diabetes complications (lipids, blood pressure, foot exams, etc.).

APPENDIX

Best Practice
Models

Indian Health Best Practice Model

Community Advocacy - Winning Support for Your Diabetes Program

Why is this important?

Community support is vital for your program success. Involving tribal leaders, elders, religious or traditional leaders, people with diabetes, youth leaders, community health representatives (CHRs) and other community advocates is the best way to gain support. Community members who are involved as partners, advocates or participants in activities can help listen, influence, identify gaps, and find solutions to the many challenges in diabetes care. They can also help blend traditional or local ways of sharing information and learning with current science and medical knowledge. Honoring traditions and local knowledge can help protect and promote health for the entire community.



"Education is the biggest part of dealing with diabetes. Getting the people to understand and it's their own native people that are going to have to educate us. If somebody comes from off the reservation I guess they don't take them seriously."

Lawrence Bedeau, Red Lake Band of Chippewa, 55 years old, diagnosed with diabetes in 1974

What can you do?

Work with community members to help create and **fine tune** diabetes program activities.

- ▶ Encourage, train and use community members to lead diabetes program activities.
- ▶ Community members can lead support groups, organize screening programs, teach cooking classes, help with home visits and increase community awareness for diabetes prevention and treatment.
- ▶ Create partnerships with other health care programs in your community.

Your community

- ▶ What efforts has your community made to support lifestyle change?
- ▶ Do you plan activities according to seasons or events important to the people in your community?
- ▶ How is your program developing and supporting leadership within the community?
- ▶ What special efforts has your program made to help people learn in the way they are most comfortable with?

You can involve your community in many ways. Here are some things to consider:

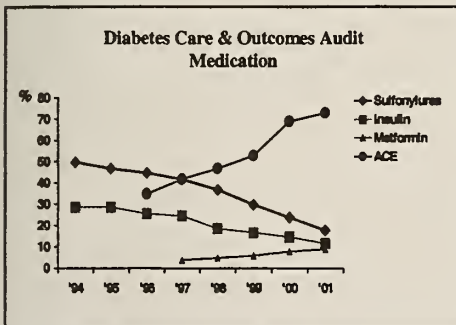
- ▶ Listen to your community. What does your community want? Ask how to involve people, programs or leadership in program planning, developing, and implementation. Invite participation from all levels in your community.
- ▶ Involve your tribal health advisory system and other tribal health programs (Head Start, WIC, School health, Elder, Youth, etc). Create diabetes prevention and care programs that are complementary not competitive.
- ▶ Find ways to share information with the community as your program progresses.
- ▶ Consider developing a diabetes advocate program to help support and sustain your community linkages. Adopt or modify diabetes advocate models known to work.
- ▶ Consider partnerships with tribal colleges or other education systems in your region. They can help educate and train youth, advocates and other community members.

Indian Health Best Practice Model

Medications for Diabetes Care

Why is this important?

Most people with diabetes need medicines to lower blood sugar and prevent diabetes complications. In recent years, a number of new, more effective, drugs have been developed for type 2 diabetes. These drugs act in different ways to lower blood sugar and improve insulin usage. New drugs to control blood pressure and blood lipids are also available to help reduce the risk for heart and kidney disease. Unfortunately, the cost of these drugs may inhibit their widespread use in American Indian/Alaska Native communities with large numbers of people who have diabetes. Indian health pharmacy budgets remain flat line while drug costs increased 25% last year alone. To provide quality diabetes care, health care providers must have access to the necessary tools, including effective medicines.



What measures are used?

► The **Indian Health Diabetes Care and Outcomes Audit** measures the number of people using medicine for blood sugar control and to protect their kidneys. The graph shows the trends in medicine use.

► The **average cost of drugs** for one person with diabetes is about \$2,000 per year. These are drugs used to lower blood sugar, blood pressure and blood lipids and to protect kidney function. Other drugs for heart, mental health or other problems are not included.

How does your program compare?

- Find out your clinic's current budget for diabetes related drugs. Is it enough?
- Is your health care team limiting the use of certain drugs due to high cost?
- Look at your audit trends, would the outcomes be better if other medicines were available?

Contributing grant funds to the pharmacy budget may help with diabetes care in your community. Here are some issues you may want to consider:

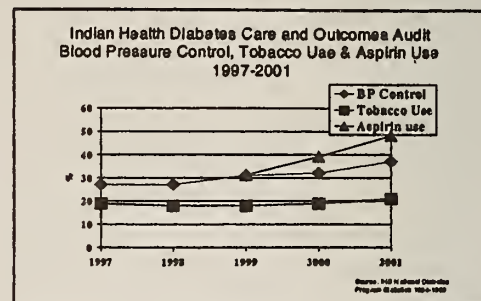
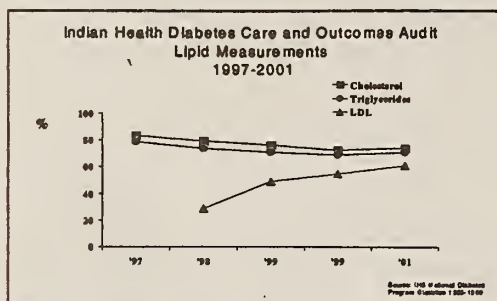
- How much does your program spend on diabetes medicines per person, per year? If you had more funds, would more people receive needed medicines? Would more funds impact the availability of medication?
- Is your present pharmacy program meeting the needs of your community? Are all people with diabetes who need blood pressure or lipid lowering drugs receiving them? How would more funds affect these needs?
- Are the new drugs for type 2 diabetes available in your pharmacy?
- Are people with diabetes receiving adequate education/information on how to take their medicines?
- Is your clinic staff, including physicians and pharmacists, up-to-date on new medicines and how to prescribe them?

Indian Health Best Practice Model

Cardiovascular Disease and Diabetes—Screening, Treatment & Follow-up

Why is this important?

People with diabetes are at 2 to 4 times higher risk for heart disease compared to people without diabetes. They also are more likely to die after a first heart attack. Cardiovascular disease (CVD) is the leading cause of death in American Indians and Alaska Natives over age 55. Risk factors for CVD include high lipid levels, high blood pressure, tobacco use, obesity, and low physical activity.



What measures are used?

- ▶ The **Indian Health Diabetes Care and Outcomes Audit** measures total cholesterol, LDL, triglycerides, blood pressure (BP), tobacco use and recommendation or referral for tobacco counseling; use of low-dose aspirin; and baseline ECG. The graphs show the reported trends in CVD risk factor measurements, for Indian health clinics that report data.
- ▶ The **Healthy People 2010** objective calls for a 10 percent reduction in cardiovascular deaths in people with diabetes.

How does your program compare?

- ▶ Find out your clinic audit results for CVD risk factors in people with diabetes.
- ▶ What percentage of people with diabetes have their lipid numbers in the target range?
- ▶ What percentage have their blood pressure in the target range?
- ▶ What percentage use tobacco?
- ▶ How many take low dose aspirin?

Your grant program may want to develop a CVD risk screening and treatment program. Here are some things to consider:

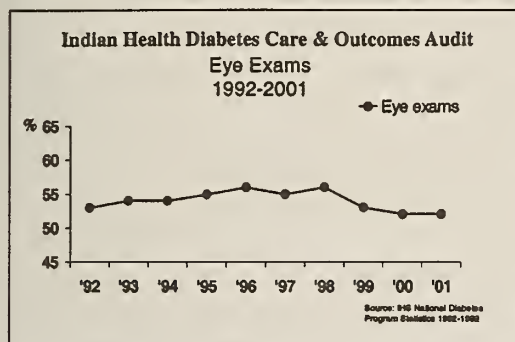
- ▶ Assess local diabetes care for CVD screening and treatment services. Are there unmet needs?
- ▶ Identify ways to reach your target populations for assessment and treatment.
- ▶ Develop lifestyle, counseling and education programs to lower CVD risk.
- ▶ Develop a system of care that includes screening, treatment and follow-up services for CVD risk factors (i.e., lipids, blood sugar, blood pressure, and tobacco use).
- ▶ Include lifestyle change (nutrition, physical activity, tobacco cessation) programs.
- ▶ Promote a team approach in your clinic that involves primary care providers and allied health care staff such as pharmacists, nutritionists, health educators and physical therapists.

Indian Health Best Practice Model

Eye Care for People with Diabetes – Screening, Treatment, and Follow-Up

Why is this important?

Diabetic eye disease (retinopathy) is the leading cause of adult blindness in the U.S. Damage to the eyes can begin even before diabetes is diagnosed. All people with type 2 diabetes should receive a dilated eye exam at diagnosis and every year thereafter. Yearly dilated eye exams need to be done by an ophthalmologist, optometrist or specially trained technician. This annual exam screens for retinopathy. Without treatment, people with diabetes who have eye disease have a 50 percent chance of blindness in 5 years. With laser treatment, the chance of serious vision loss is reduced to less than 2 percent in these same people with high-risk diabetic eye disease.



What measures are used?

► **The Indian Health Diabetes Care and Outcomes Audit** measures the number of people with a documented dilated eye exam or fundus photograph within the past year. The graph shows the reported trends in yearly-dilated eye exams for all Indian health clinics that report audit data.

► **The Healthy People 2010** objective advises that at least 75 percent of people with diabetes receive a yearly-dilated eye exam.

How does your program compare?

- **How do your numbers clinic audit results for eye exams during the last few years?**
- **Find out your numbers in here:** _____% FY97 _____%FY98 _____%FY99
_____%FY2000 _____%FY2001
- **How do your numbers compare to the Indian health trends?**
- **How do your numbers compare to the Healthy People 2010 objective?**

If your numbers are low, your diabetes grant program may want to develop an eye care program. Here are some things to consider:

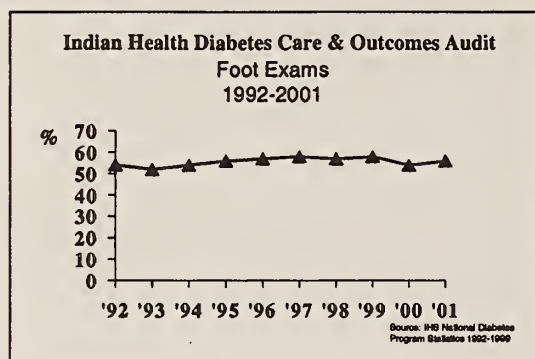
- Assess your local eye care program for people with diabetes. Are there unmet needs?
- Identify ways to increase the number of dilated eye exams. (media, eyeglasses, off site screening, telemedicine, etc.)
- Ensure easy access to eye exams, including staffing, space, equipment, or off-site facilities for community-based screening.
- Provide education to people with diabetes and their families about the need for yearly eye exams.
- Provide timely treatment of eye disease including laser therapy, corrective eyeglasses, and other treatments if needed.
- Establish and maintain tracking and monitoring programs for people with diabetes to help track diabetes care and treatment needs.

Indian Health Best Practice Model

Foot Care for People with Diabetes – Screening, Treatment, and Follow-up

Why is this important?

Lower-extremity amputations are a major cause of morbidity and mortality for people with diabetes, especially in American Indian and Alaska Native communities. Most amputations result from problems with foot ulcers. We can prevent amputations by screening and managing the risk factors for foot ulcers. All people with diabetes should receive a complete foot exam at least once a year to identify high-risk foot problems. A complete foot exam includes recording any history of foot problems, a visual check, testing for nerve problems and blood vessel problems.



What measures are used?

► The **Indian Health Diabetes Care and Outcomes Audit** measures the number of people with a complete foot exam within the past year (includes assessment of nerve and blood vessel status). The graph shows the reported trends in yearly foot exams for all Indian health clinics that report audit data.

► The **Healthy People 2010** objective advises that 75 percent of people with diabetes receive a complete foot exam each year.

How does your program compare?

- Find out your clinic audit results for foot exams during the last few years.
- Write those numbers in here: ____ % FY97 ____ % FY98 ____ % FY99
____ % FY2000 ____ % FY2001
- How do your numbers compare to the Indian health trends?
- How do your numbers compare to the Healthy People 2010 objective?

If your numbers are low, your diabetes grant program may want to develop a foot care program. Here are some things to consider:

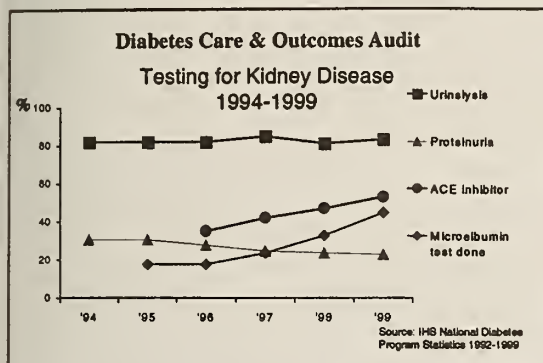
- Assess your local foot care programs for people with diabetes. Are there unmet needs?
- Identify ways to reach your target populations to increase the number of foot exams.
- Provide education on the importance of daily foot care, preventing minor foot trauma, shoe selection and use, and reporting any foot problems.
- Develop a comprehensive foot care program that includes screening and risk assessment, preventive care, wound management and follow-up.
- Provide staffing and training for foot care programs, including CHRs, primary care providers, nurse educators, podiatrists, wound care specialists, and pedorthists.
- Promote case management and treatment of other health conditions such as high blood sugar, tobacco cessation programs and blood vessel disorders.

Indian Health Best Practice Model

Kidney Disease – Screening, Prevention, Treatment and Follow-up

Why is this important?

Diabetes is the most common single cause of kidney failure in the U.S. The presence of protein in the urine marks the beginning of kidney damage that progresses over time. People with diabetes need yearly urine and blood tests to screen for early kidney disease. Improving blood sugar control, using aggressive treatment to control high blood pressure, and using medicines called ACE inhibitors can protect kidney function.



What measures are used?

► The **Indian Health Diabetes Care and Outcomes Audit** measures screening for protein in the urine (urinalysis & micro albumin tests). The audit measures the percentage of people with diabetes who have protein in the urine (≥ 300 mg/dl), and the percentage of people with diabetes being treated with ACE inhibitors. The graph shows the reported trends in testing for kidney disease, for all Indian health clinics reporting audit data.

► The **Healthy People 2010** objective is to increase the number of people with diabetes who obtain an annual urine test for micro albumin (small amounts of protein in urine).

How does your program compare?

- Find out your clinic audit results for kidney disease screening during the last few years.
- Write those numbers in here: ____ % FY97 ____ % FY98 ____ % FY99 ____ % FY2000 ____ % FY2001
- How do your numbers compare to the Indian health trends?
- How do your numbers compare to the Healthy People 2010 objective?

If your numbers are low, your diabetes grant program may want to develop a diabetes kidney program. Here are some things to consider:

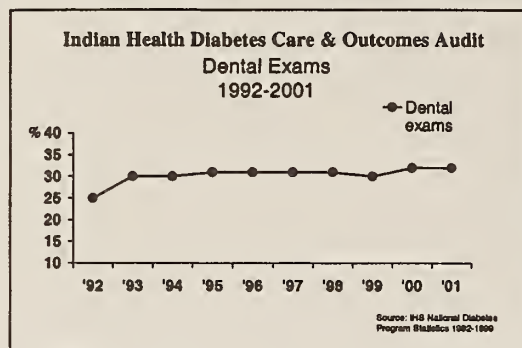
- Assess your local kidney screening programs. Are there unmet needs?
- Identify ways to reach your target populations for annual screening for kidney disease
- Educate people with diabetes and their families about the need for blood pressure control including lifestyle modifications and medications to control blood pressure.
- Implement a “staged kidney management” approach in your clinic, with protocols for education, interventions and management at each stage. The National Kidney Foundation as the Kidney Disease Outcomes Quality Initiative is developing standards of care for chronic kidney disease.
- Provide training in kidney disease screening, treatment and follow-up to all members of the team.
- Promote case management and treatment of other conditions that affect kidney health such as high blood pressure and high blood sugar.

Indian Health Best Practice Model

Dental Care for People with Diabetes – Screening, Treatment, and Follow-up

Why is this important?

Periodontal (gum) disease poses a serious threat to dental health and is the leading cause of adult tooth loss in the U.S. Periodontal disease is often present before the diagnosis of diabetes. All people with diabetes should have a dental exam at diagnosis and continue with an annual exam that screens for gum disease and other dental problems, thereafter. Taking care of the dental needs of people with diabetes can prevent gum disease and tooth loss.



What measures are used?

► The **Indian Health Diabetes Care and Outcomes Audit** measures the number of people with a dental exam within the past year. The graph shows the reported trends in yearly dental exams (for all Indian health clinics reporting audit data).

► The **Healthy People 2010** objective advises that 75 percent of people with diabetes receive an annual dental exam.

How does your program compare?

- Find out your clinic audit measures for dental exams during the last few years.
- Write those numbers here: ____ % FY97 ____ % FY98 ____ % FY99
____ % FY2000 ____ % FY2001
- How do your numbers compare to the Indian health trends?
- How do your numbers compare to the Healthy People 2010 objective?

If your numbers are low, your diabetes grant program may want to develop a diabetes dental program. Here are some things to consider:

- Assess your local dental care program for people with diabetes. Are there unmet needs?
- Identify ways to increase the number of people who receive yearly dental exams.
- Develop a program that improves access to dental exams, including staffing, (dentists, dental hygienists, assistants) space, equipment and special needs.
- Provide education to people with diabetes and their families about the need for yearly dental exams.
- Provide timely treatment of periodontal (gum) and dental problems, including crowns and bridgework when needed.
- Promote care and treatment of other conditions such as high blood sugar, high blood pressure and tobacco cessation programs.

Indian Health Best Practice Model

Pregnancy and Diabetes – Screening, Management and Follow-up

Why is this important?

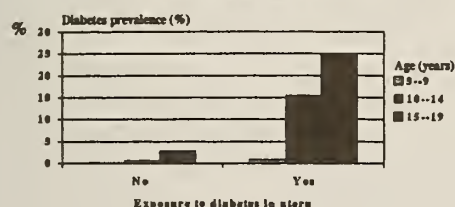
Diabetes in pregnancy poses risks for both mother and baby. Pregnant women with diabetes and their babies are at greater risk for complications during pregnancy than are women without diabetes. Careful management of diabetes during pregnancy, including early screening for gestational diabetes, reduces the risk of complications for mothers and babies. After pregnancy, women who have a history of gestational diabetes and their offspring are at risk for developing type 2 diabetes, obesity, and insulin resistance in later years. Early screening and careful management of diabetes in pregnancy offers the best chance for a healthy mother and baby. Breastfeeding for at least for 2 months may offer some protection against diabetes in the baby.

What measures are used?

► Studies in the Pima Indians show the long-term effects of diabetes during pregnancy. This graph shows the percentage of children who developed type 2 diabetes of mothers who had diabetes during pregnancy. The numbers become greater as the youth enter their teen years.

► The **Healthy People 2010** objective is to decrease the proportion of women with gestational diabetes.

Prevalence of diabetes among Pima children by age and exposure to diabetes in utero



Source: Diabetes et al. Diabetologia 1998;41:904-910

Diabetes and pregnancy in your community

- Find out your rates of diabetes in pregnancy in your community. What is the trend?
- What are the screening and management practices for diabetes in pregnancy in your clinic?
- What type of follow-up is available for women with gestational diabetes?
- Are support services available for mothers who want to breastfeed?

You may find that your program wants to focus on diabetes in pregnancy. Here are some things to consider:

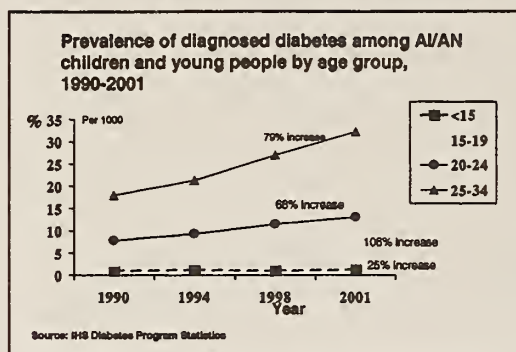
- Develop a program that improves access to pregnancy clinics including staffing, space, equipment, and community-based screening programs.
- Develop diabetes and pregnancy education and awareness programs. Identify ways to reach all women of childbearing age.
- Provide supplies and equipment for blood sugar monitoring.
- Develop programs that provide support, education and reinforcement of lifestyle choices to prevent, manage or treat diabetes in women of childbearing age and their families.
- Establish a multidisciplinary program that includes intense education, management by trained providers, and community involvement. Provide staff training.
- Include community networks that support women and families: preschool programs, feeding programs, Head Start, breast-feeding support groups and WIC.

Indian Health Best Practice Model

Type 2 Diabetes in Youth—Prevention and Screening

Why is this important?

Type 2 diabetes is occurring with increasing frequency in children and young adults. Although the peak age of occurrence is usually around adolescence, type 2 diabetes has been reported in American Indian children as young as 4 years. Risk factors for type 2 diabetes in children include obesity or being overweight; inactivity; a family history of type 2 diabetes; type 2 diabetes or gestational diabetes in the mother; belonging to a certain ethnic group, including American Indian; and signs of insulin resistance or conditions associated with insulin resistance such as hypertension, high blood lipids, or irregular menses. In addition, **breastfeeding from birth for at least two months has been shown to be protective against the later development of diabetes.**



What measures are used?

Finding type 2 diabetes in AI/AN youth is not uncommon. A recent IHS study shows that from 1990-2001:

- ▶ Among AI/AN youth age 15 to 19 years, diabetes increased by 106%;
- ▶ Among AI/AN young adults between 20 and 24 years, diabetes increased by 68%;
- ▶ Among AI/AN young adults age 25 to 34 years, diabetes increased by 79%.

How does your program compare?

- ▶ **Look at your diabetes registry. Determine your prevalence rates for type 2 diabetes in youth over the past few years. Look at the registry by age groups, sex and community.**
- ▶ **How do your numbers compare to the Indian health trends?**
- ▶ **Assess your diabetes prevention and screening programs. Are there unmet needs?**

Your program may want to develop or improve diabetes programs for youth. Here are some things to consider:

- ▶ Assess your children/youth programs. Encourage information sharing among programs.
- ▶ Develop a screening, tracking and referral program for high-risk children (such as those whose mothers had diabetes during pregnancy).
- ▶ Promote community and family awareness through special programs in schools, camps, tribal events, family health programs, and community gatherings.
- ▶ Provide training programs on type 2 diabetes in youth for health care providers, social service workers, school and camp personnel, and others who work with families.
- ▶ Work with tribal and community leaders, churches, businesses and schools to promote the use of healthy foods and physical activity for all youth in your community.
- ▶ Consider breastfeeding promotion as a primary prevention activity.

Indian Health Best Practice Model

Diabetes Self-Management Education

Why is this important?

Diabetes self-management education is a key element of diabetes prevention and treatment. People with diabetes and their families need to learn and practice new lifestyle skills. These skills include monitoring blood sugar, making healthy food choices, being more active and reducing risk for diabetes complications. People with diabetes must be active participants in the educational process, setting learning and behavioral goals that meet his or her physical, emotional, and lifestyle needs. Incorporating cultural methods of sharing ideas and skills may be the single, best way of helping people with diabetes and their families learn about diabetes self-management practices.

"If I had it to do all over again, I would follow a path of healthier living.And if I would give advice to anybody, if they know they got diabetes, take care of it, get educated on what it could do."



- Courtesy of IHS National Diabetes Program & Nat'l Indian Council on Aging

Lawrence Williams, Red Lake Band of Chippewa, 85 years old, diagnosed with diabetes in 1974

What measures are used?

- ▶ The **Indian Health Diabetes Care and Outcomes Audit** measures documentation of nutrition, exercise and general diabetes education. Audit trends show that over fifty percent of people with diabetes receive diabetes education each year.
- ▶ The **Healthy People 2010** objective advises that 60 percent of people with diabetes receive formal diabetes education.

How does your program compare?

- ▶ Find out your clinic audit trends for nutrition, exercise and general diabetes education.
- ▶ How do your numbers compare to the Healthy People 2010 Objective?
- ▶ You can use the Indian Health Integrated Diabetes Education and Care Standards to assess your diabetes education program.

Your diabetes grant program may want to improve diabetes education services within your community. Here are some things to consider:

- ▶ Assess your diabetes education program. You can use the Indian Health Integrated Diabetes Education and Care Standards as a framework for your assessment, (available through the National Diabetes Program Web site-see below).
- ▶ Develop a plan to strengthen your diabetes education program based on community needs.
- ▶ Identify ways to reach your target populations. Use a variety of education approaches that work in your community—one-on-one, group classes, support groups, talking circles, cooking classes or activity programs.
- ▶ Provide needed resources for quality diabetes education: staffing, materials, training, space, etc.
- ▶ Involve spiritual and community networks in educational programs. Use respected ways of teaching tradition, cultural values and behavioral practices. Ask community members to share stories or messages about diabetes.

APPENDIX

Best Practice
Models

Indian Health Best Practice Model

Nutrition and Physical Fitness Programs for People with Diabetes

Why is this important?

Nutrition and physical fitness play major roles in helping people with diabetes and their families stay healthy. Investment of time and resources in nutrition, fitness and lifestyle change promises long-term benefits not only for diabetes, but also in reducing risks for heart disease and promoting overall health. Blending traditional and local nutrition and fitness practices may help with needed lifestyle changes for families and communities.



- ▶ Involve people in the community in planning, staffing, and teaching nutrition and fitness programs.
- ▶ Consider offering programs in schools and work places. Consider offering programs during various times of the day such as after-school, women and infants, elders and other groups.

Nutrition and fitness in your community

- ▶ Look at diabetes rates in your community. What is the trend?
- ▶ Look at the diabetes audit measures for overweight and obesity, blood sugar control and other measures that nutrition and fitness programs may impact. What are the trends?
- ▶ Look at what program are currently in place. How can you work collaboratively?

Your diabetes grants program may want to consider a diabetes nutrition and fitness program. Here are some things to consider:

- ▶ Assess your local nutrition and fitness programs in your community. Are there unmet needs?
- ▶ Facilitate and ensure access to programs including staffing, space, equipment, and off-site facilities for community-based programs.
- ▶ Solicit sponsorship for nutrition and fitness programs from employers, supermarkets, churches, and clubs for young people.
- ▶ Use traditional ways of sharing and learning new information and practices.
- ▶ Train community members as nutrition and fitness leaders.
- ▶ Encourage all nutrition and fitness programs in your community to be collaborative not competitive.

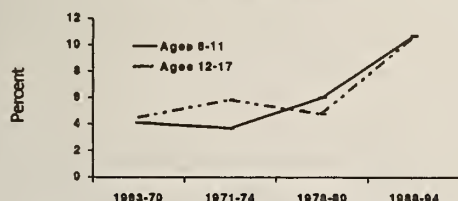
Indian Health Best Practice Model

School Health – Physical Activity and Nutrition

Why is this important?

The school setting, ranging from preschool to college, can be a successful environment for diabetes prevention activities within the community. Schools can develop effective policies and educational programs that help young people and their families to increase physical activity and to learn and practice healthy eating. Establishing healthy eating and physical activity patterns at a young age is critical. Changing poor eating patterns in adulthood can be difficult.

Percentage of Young People Who Are Overweight*



*Overweight defined by the age- and sex-specific 95th percentile of body mass index (1963-70 data). Source: Trolano RP; Flegal KM. Pediatrics 1998; 101(3):497-504.

What measures are used?

- ▶ **Type 2 diabetes among adolescents** is linked to the childhood obesity epidemic. According to the American Diabetes Association, more than 85% of all children and adolescents with type 2 diabetes are seriously overweight at the time of diagnosis. The graph shows the increasing percentage of young people who are overweight.
- ▶ Nutrition and physical activity patterns contribute to obesity. More than 84% of young people in the U.S. eat too much fat, and more than 91% eat too much saturated fat. Nearly half of American youth, 12-21 years, are not active.

- ▶ Implement a curriculum that focuses on increased physical activity and healthy eating.
- ▶ Establish non-competitive and competitive physical activity programs for all ages and abilities. Consider after school, summer and family activity programs.
- ▶ The **Healthy People 2010** objective specifies that 90 percent of children and youth receive school health education on increase physical activity and 95 percent receive education on healthy dietary patterns.

Your Community

- ▶ How many of your schools provide healthy eating and physical activity education programs?
- ▶ Write those numbers in here: Preschool Elementary Jr. High High School

If your numbers are low, your diabetes grant program may want to focus on a school health program. Here are some things to consider:

- ▶ Assess your local schools. Involve the parents, school staff and community by establishing a school health advisory council to develop a program that works for all.
- ▶ Support parents and caregivers by providing guidance in parenting skills along with tools that encourage healthy eating habits and physical activity.
- ▶ Work with your schools to offer meals and snacks low in fat, sodium, and added sugars.
- ▶ Provide training to teachers and food service staff on obesity and its consequences; especially type 2 diabetes of children and adolescents.

APPENDIX

Best Practice
Models

Appendix IV

GRANT PROGRAMS BY AREA

SUMMARY OF YR. 01-06 - AWARDED TO T/I/U

AREA	1997-1998	1998-1999	1999-2000	2000-2001			2001-2002			2002-2003	GRAND TOTAL
	Yr 1 BBA Amt	Yr 2 BBA Amt	Yr 3 BBA Amt	Yr 4 BBA Amt	Yr 4 Supplement	TOTAL BBA/Supplmt	Yr 5 BBA Amt	Yr 5 CAA AMT	TOTAL BBA/CAA	Yr 6 CAA	
ABERDEEN	3,163,974	3,163,974	3,130,725	3,130,725	5,832,496	8,963,221	3,130,725	5,534,594	8,695,319	8,695,319	36,013,532
ALASKA	2,816,838	2,816,838	2,783,589	2,783,589	5,287,865	8,071,454	2,986,900	5,831,198	8,818,098	8,234,947	33,541,764
ALBUQUERQUE	2,274,460	2,274,460	2,241,204	2,236,103	4,743,134	6,979,237	2,395,559	4,237,791	6,781,686	6,724,242	27,275,289
BEMIDJI	2,298,507	2,298,507	2,298,507	2,239,564	5,119,020	7,358,584	2,265,348	4,879,742	7,145,090	7,145,050	28,544,245
BILLINGS	1,709,497	1,709,496	1,676,247	1,485,523	3,105,673	4,674,144	1,593,300	3,213,101	5,393,636	4,806,401	19,969,421
CALIFORNIA	1,107,729	1,570,591	1,523,245	1,523,245	3,385,873	4,909,118	1,521,765	3,861,006	5,388,771	5,388,371	19,887,825
NASHVILLE	1,443,864	1,443,859	1,404,462	1,408,547	2,853,330	4,261,877	1,325,677	3,071,938	4,397,615	4,374,871	17,326,548
NAVAJO	4,320,747	4,320,747	4,287,498	4,287,498	8,657,490	12,944,988	3,874,278	9,039,985	12,914,263	12,914,263	51,702,506
OKLAHOMA	4,787,735	4,787,735	4,754,486	4,653,752	10,834,273	15,807,468	4,714,930	11,171,298	15,974,238	16,459,656	62,571,318
PHOENIX	3,798,793	3,798,793	3,765,544	3,682,641	7,645,248	11,582,794	3,713,525	7,691,200	11,523,890	11,523,886	45,993,700
PORTLAND	1,592,172	1,592,172	1,558,473	1,570,087	3,151,544	4,889,002	1,558,522	3,391,488	4,992,408	4,950,035	19,574,262
TUCSON	769,542	674,156	736,293	736,293	1,545,367	2,281,660	736,293	1,596,538	2,332,831	2,332,831	9,127,313
URBAN	1,500,000	1,500,000	1,438,516	1,396,207	3,326,169	4,910,000	1,483,469	3,500,000	5,088,192	5,086,572	19,523,280
TOTAL	31,583,858	31,951,328	31,598,789			97,633,547			99,647,037	98,636,444	391,051,003

APPENDIX

Grant Programs
by Area



SUMMARY OF YR. 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - ABERDEEN AREA

				AWARD			AWARD			AWARD			AWARD	
				1997-1998	1998-1999	1999-2000	2000-2001			2001-2002			2002-2003	
Tribe	NEW	FORMER		Yr 1	Yr 2	Yr 3	Yr 4		TOTAL	Yr 5	Yr 5	TOTAL	Yr 6	
IHS	GRANT	GRANT		88A	88A	88A	88A	Supple-	BBA/	88A	CAA	88A/	CAA	GRAND
Urban	NUMBER	Number	GRANTEE	Amt	Amt	Amt	Amt	ment	Suppl	Amt	Amt	CAA	Amt	TOTAL
Tribe	H1D9400024	45HD00001	Cheyenne River, Eagle Butte	172,007	172,007	172,007	172,007	341,629	513,636	172,007	322,151	494,158	494,158	2,017,973
IHS	H1D9400369	45HD00002	Crow Creek/Ft.Thompson	134,012	134,012	134,012	134,012	229,562	363,574	134,012	219,507	353,519	353,519	1,472,648
IHS	H1D9400408		Ft. Thompson SU									30,000	30,000	60,000
Tribe	H1D9400133	45HD00003	Spirit Lake	174,170	174,170	174,170	174,170	252,794	426,964	174,170	240,786	414,956	414,956	1,779,386
Tribe	H1D9400025	45HD00004	Flandreau Santee	116,058	116,058	116,058	116,058	154,039	270,097	116,058	150,335	266,393	266,393	1,151,057
Tribe	H1D9400026	45HD00005	Lower Brule	128,911	128,911	128,911	128,911	167,588	296,499	128,911	162,745	291,656	291,656	1,266,544
Tribe	H1D9400027	45HD00006	Ponca of Nebraska, Niobrara	102,910	102,910	102,910	102,910	151,824	254,734	102,910	148,307	251,217	251,217	1,065,898
Tribe	H1D9400028	45HD00007	Oglala Sioux, Pine Ridge	313,716	313,716	313,716	313,716	771,405	1,085,121	313,716	715,785	1,029,501	1,029,501	4,085,271
Tribe	H1D9400029	45HD00008	Omaha Tribe of NB, Macy	135,478	135,478	135,478	135,478	257,933	393,411	135,478	245,493	380,971	380,971	1,561,787
IHS	H1D9400101	45HD00009	Rapid City Hosp., Rapid City	202,570	202,570	202,570	202,570	412,568	615,138	202,570	387,124	589,694	589,694	2,402,236
Tribe	H1D9400030	45HD00010	Rosebud Sioux	205,122	205,122	205,122	205,122	506,880	712,002	205,122	473,506	678,628	678,628	2,684,624
Tribe	H1D9400154	45HD00011	Sac & Fox of Iowa, Tama	106,141	106,141	106,141	106,141	139,711	245,852	106,141	137,212	243,353	243,353	1,050,981
Tribe	H1D9400031	45HD00012	Santee Sioux, Niobrara	109,026	109,026	109,026	109,026	154,204	263,230	109,026	150,486	259,512	259,512	1,109,332
Tribe	H1D9400235	45HD00013	Sisseton-Wahpeton	153,686	153,686	153,686	153,686	271,764	425,450	153,686	258,161	411,847	405,847	1,704,202
IHS	H1D9400407		Sisseton SU									21,000	6,000	27,000
Tribe	H1D9400325	45HD00014	Standing Rock	259,483	259,483	259,483	259,483	371,976	631,459	259,483	349,945	609,428	572,428	2,591,764
IHS	H1D9400155	45HD00015	Ft. Berthold SU	171,753	171,753	171,753	171,753	320,999	492,752	171,753	303,255	475,008	475,008	1,958,027
Tribe	H1D9400033	45HD00016	Trenton Svc Area	110,006	110,006	110,006	110,006	151,257	261,263	110,006	147,788	257,794	257,794	1,106,869
Tribe	H1D9400161	45HD00017	Turtle Mountain	184,562	184,562	184,562	154,562	437,833	592,395	184,562	446,901	631,463	481,463	2,259,007
IHS	H1D9400390		Quentin N. Burdick				30,000	40,000	70,000				150,000	220,000
Tribe	H1D9400278	45HD00018	Winnebago Tribe	140,030	140,030	140,030	140,030	260,600	400,630	140,030	247,935	387,965	387,965	1,596,650
IHS	H1D9400102	45HD00019	Wagner Health Center	128,180	128,180	128,180	128,180	237,930	366,110	128,180	227,172	355,352	355,352	1,461,354
IHS	H1D9400172	45HD00020	Aberdeen Area	116,153	116,153	82,904	82,904	200,000	282,904	82,904	200,000	282,904	282,904	1,163,922
IHS	H1D9400410		Pine Ridge SU									180,000		180,000
IHS	H1D9400416		Ft. Yates SU										37,000	37,000
TOTAL				3,163,974	3,163,974	3,130,725			8,963,221			8,896,319	8,695,319	36,013,532

13 awarded in South Dakota

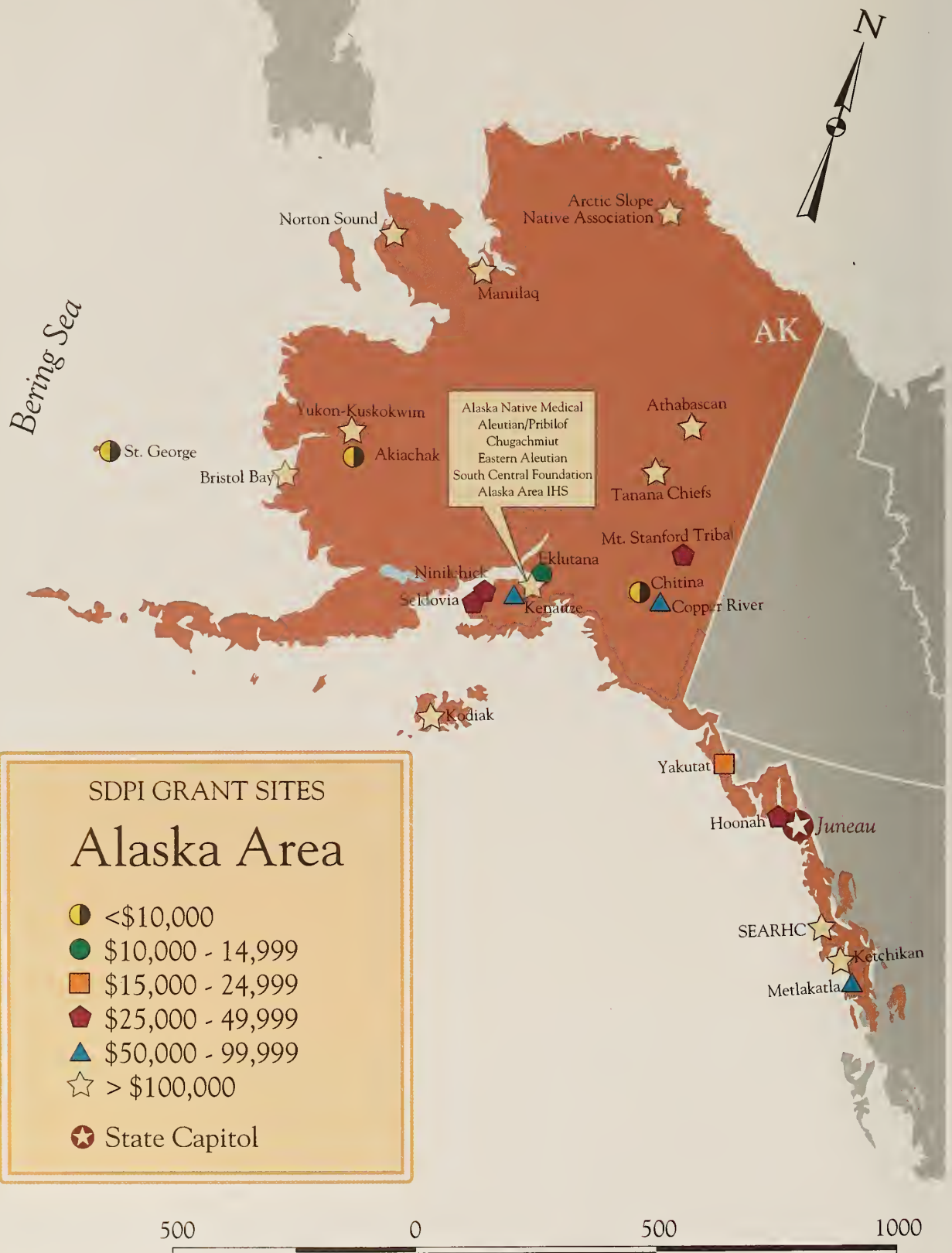
7 awarded in North Dakota

3 awarded in Nebraska

2 awarded in Iowa

APPENDIX

Grant Programs
by Area—Aberdeen



SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - ALASKA AREA

Tribe	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARD			AWARD			AWARD			AWARD		GRAND TOTAL
				1997-1998	1998-1999	1999-2000	2000-2001	2000-2001	TOTAL	2001-2002	2001-2002	TOTAL	2002-2003	2002-2003	
				YR 01 BBA AMT	YR 02 BBA AMT	YR 03 BBA AMT	YR 04 BBA AMT	YR 04 Supple- ment	BBA Suppl	YR 05 BBA AMT	YR 05 CAA AMT	88A/ CAA	YR 06 CAA AMT		
Tribe	H1D9400063	59HD00001	Akiachok	9,383	9,383	9,272	9,272		9,272						37,310
IHS	H1D9400265	59HD00002	ANTHC	299,601	299,601	296,061	296,061	300,000	596,061	296,061	300,000	596,061	596,061		2,683,446
Tribe	H1D9400146	59HD00003	Aleutian/Pribilof Is.	82,015	82,015	45,264	45,264	74,604	119,868	45,264	68,992	114,256	114,256		557,674
Tribe		59HD00030	St. George												
Tribe	H1D9400366	59HD00004	Artic Slope Native Assoc	91,707	91,707	90,625	90,625	181,775	272,400	90,625	187,762	278,387	278,387		1,103,213
Tribe	H1D9400148	59HD00005	Arikobascon	37,143	37,143	36,705	36,705	68,305	105,010	249,288	438,354	687,642	104,609		1,008,252
Tribe	H1D9400099	59HD00006	Bristol Bay	252,265	252,265	249,288	249,288	449,001	698,289	249,288	438,354	687,642	687,642		2,827,391
Tribe	H1D9400064	59HD00009	Chugachmiut	50,245	50,245	49,652	49,652	98,395	148,047	49,652	101,039	150,691	150,691		599,571
Tribe	H1D9400350	59HD00010	Copper River	34,971	34,971	34,558	34,558	55,797	90,355	34,558	50,895	85,453	85,453		365,761
Tribe		59HD00008	Chitina												
Tribe	H1D9400368	59HD00012	Eastern Aleutian			35,783	35,783	63,499	99,282	35,783	61,465	97,248	97,248		329,561
Tribe	H1D9400065	59HD00013	Eklutna	4,416	4,416	4,364	4,364	8,257	12,621	4,364	8,282	12,646	12,646		51,109
Tribe	H1D9400066	59HD00015	Hoonah	10,120	10,120	10,001	10,001	17,939	27,940	10,001	17,472	27,473	27,473		113,127
Tribe	H1D9400338	59HD00017	Kenaitze	26,586	26,586	26,272	26,272	54,604	80,876	26,272	57,472	83,744	83,626		327,690
Tribe	H1D9400067	59HD00018	Ketchikan	34,559	43,732	43,216	43,216	84,194	127,410	43,216	85,727	128,943	128,943		506,803
Tribe	H1D9400294	59HD00020	Kodiak	73,452	73,452	72,585	72,585	142,657	215,242	72,585	145,893	218,478	218,478		871,687
Tribe	H1D9400342	59HD00022	Monileq	192,152	192,152	189,884	189,884	368,152	558,036	189,884	373,939	563,823	563,823		2,259,870
Tribe	H1D9400068	59HD00023	Metlakatla	27,431	27,431	27,107	27,107	43,173	70,280	27,107	39,012	66,119	66,119		284,487
Tribe	H1D9400069	59HD00024	Mt. Stanford	11,101	11,101	10,970	10,970	21,189	32,159	10,970	21,481	32,451	32,451		130,233
Tribe	H1D9400070	59HD00025	Nimilchick	8,121	8,121	8,025	8,025	16,367	24,392	8,025	17,041	25,066	25,066		98,791
Tribe	H1D9400274	59HD00026	Norton Sound	211,718	211,718	209,219	209,219	369,402	578,621	209,219	356,518	565,737	565,737		2,342,750
Tribe	H1D9400240	59HD00027	SEARHC	294,970	285,797	282,425	282,425	506,593	789,018	282,425	493,419	775,844	775,844		3,203,898
Tribe	H1D9400071	59HD00028	Seldavia	11,405	11,405	11,270	11,270	20,210	31,480	11,270	19,681	30,951	30,951		127,462
Tribe	H1D9400293	59HD00029	Southcentral	206,706	206,706	204,266	204,266	834,698	1,038,964	204,266	1,074,069	1,278,335	1,278,335		4,213,312
Tribe	H1D9400135	59HD00032	Tanana Chiefs	299,613	299,613	296,077	296,077	550,976	847,053	296,077	547,740	843,817	843,817		3,429,990
Tribe	H1D9400266	59HD00035	Yakutat	7,642	7,642	7,552	7,552	13,546	21,098	7,552	13,194	20,746	20,746		85,426
Tribe	H1D9400362	59HD00036	Yukon-Kuskokwim	539,516	539,516	533,148	533,148	944,532	1,477,680	533,148	913,397	1,446,545	1,446,545		5,982,950
Tribe		59HD00007	Chickaloon												
Tribe		59HD00011	Diomedes												
Tribe		59HD00014	Fairbanks Native Assoc												
Tribe		59HD00016	Karluk												
Tribe		59HD00019	Knik												
Tribe		59HD00021	Kwintagok												
Tribe		59HD00031	Tonona												
Tribe	H1D5900362	59HD00033	Tyonek												
Tribe		59HD00034	Valdez												
TOTAL				2,816,838	2,816,838	2,783,589			8,071,454			8,818,098	8,234,947		33,541,764

24 Awarded in Alaska

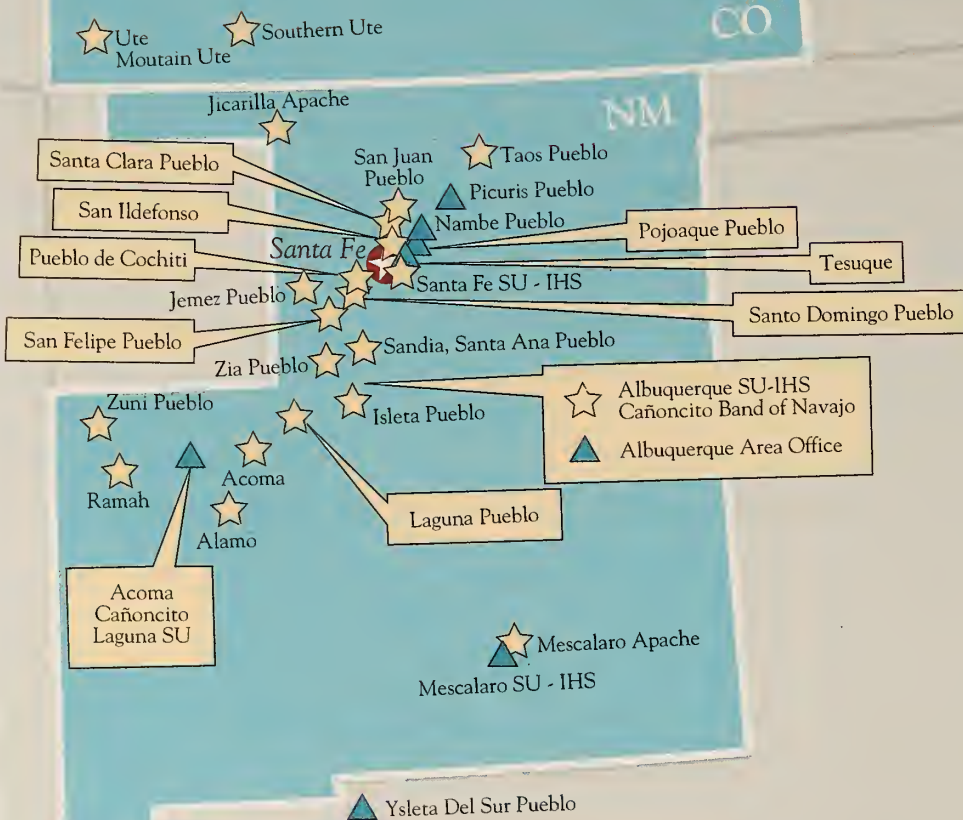
APPENDIX

Grant Programs
by Area—Alaska

SDPI GRANT SITES

Albuquerque Area

- <\$10,000
- \$10,000 - 14,999
- \$15,000 - 24,999
- ◆ \$25,000 - 49,999
- ▲ \$50,000 - 99,999
- ☆ > \$100,000
- ★ State Capitol



100 0 100 200 300 400

MEXICO

SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - ALBUQUERQUE AREA

Tribe	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED		GRAND TOTAL
				1997-1998	1998-1999	1999-2000	2000-2001		Yr 4 BBA/ Suppl	2001-2002		Yr 5 BBA/ CAA	2002-2003		
				Yr 1 BBA Amt	Yr 2 BBA Amt	Yr 3 BBA Amt	Yr 4 BBA Amt	Supple- ment		Yr 5 BBA Amt	Yr 5 CAA Amt		Yr 6 BBA/ CAA Amt	Yr 6 CAA Amt	
IHS Urban															
Tribe	H1D9400165	53HD00001	Acoma	78,077	78,077	78,077	78,077	173,011	251,088	78,077	162,811	240,888	240,888		967,095
Tribe	H1D9400365	53HD00002	Canondito/AAIHB	51,081	51,081	51,081	new grant numbers & name			new grant numbers & name				153,243	
Tribe	H1D9400124	53HD00003	Laguna	105,290	105,290	105,290	105,290	269,227	374,517	105,290	218,902	324,192	324,192	1,338,771	
Tribe	H1D9400125	53HD00004	Alamo Navajo	109,033	109,033	109,033	109,033	301,742	410,775	109,033	285,159	394,192	394,634	1,526,700	
Tribe	H1D9400052	53HD00005	Isleta	186,706	186,706	186,706	186,706	516,779	703,485	186,706	488,119	674,825	674,825	2,613,253	
Tribe	H1D9400053	53HD00006	Jemez	138,415	138,415	138,415	138,415	381,194	519,609	138,415	361,610	500,025	500,025	1,934,904	
IHS	H109400145	53HD00025	Albuquerque SU	255,976	255,976	255,976	255,976	292,334	548,310	255,976	276,369	532,345	150,000	1,998,583	
Tribe		53HD00008	Santa Ana										171,264	171,264	
Tribe		53HD00009	Zia										211,081	211,081	
Tribe	H1D9400054	53HD00007	Sandia	39,889	39,889	39,889	39,889	111,272	151,161	39,889	104,922	144,811	144,811	560,450	
Tribe	H1D9400055	53HD00010	Jicarilla	78,956	78,956	78,956	78,956	174,769	253,725	78,956	164,569	243,525	243,525	977,643	
Tribe	H1D9400056	53HD00011	Mescalero	78,419	78,419	78,419	78,419	173,695	252,114	78,419	163,495	241,914	241,914	971,199	
Tribe	H1D9400118	53HD00012	Navajo	27,263	27,263	27,263	27,263	58,740	86,003	27,263	56,191	83,454	89,580	340,826	
Tribe	H1D9400292	53HD00013	Picuris	19,626	19,626	19,626	24,727	53,668	78,395	24,727	51,119	75,846	75,846	288,965	
Tribe	H1D9400119	53HD00014	Pojoaque	21,457	21,457	21,457	21,457	60,323	81,780	26,558	53,949	80,507	80,507	307,165	
Tribe	H1D9400126	53HD00015	San Felipe	62,750	62,750	62,750	77,033	170,923	247,956	77,033	160,723	237,756	237,756	911,718	
Tribe	H1D9400163	53HD00017	Santa Domingo	83,935	83,935	83,935	103,319	227,709	331,028	103,319	214,960	318,279	318,279	1,219,391	
Tribe	H1D9400057	53HD00018	Taos	49,040	49,040	49,040	60,262	133,167	193,429	59,402	126,376	185,778	185,778	712,105	
Tribe	H1D9400058	53HD00019	Southern Ute	61,907	61,907	61,907	61,907	136,457	198,364	61,907	128,806	190,713	190,713	765,511	
Tribe	H1D9400127	53HD00020	Ute Mt. Ute	84,231	84,231	84,231	84,231	185,319	269,550	84,231	175,119	259,350	259,350	1,040,943	
Tribe	H1D9400059	53HD00021	Ysleta del Sur, TX	31,090	31,090	31,090	31,090	66,394	97,484	31,090	63,845	94,935	94,935	380,624	
Tribe	H1D9400060	53HD00022	Ramah	69,973	69,973	69,973	69,973	152,589	222,562	69,973	144,938	214,911	214,911	862,303	
Tribe	H1D9400061	53HD00023	Zuni	194,546	194,546	194,546	194,546	427,020	621,566	194,546	404,071	598,617	598,617	2,402,438	
Tribe	H1D9400168	53HD00024	A-C-L-SU	37,537	37,537	37,537	37,537	27,556	65,093	37,537	52,975	90,512	90,512	358,728	
IHS	H1D9400128	53HD00026	Mescalero SU	18,451	18,451	18,451	18,451	39,008	57,459	18,451	37,735	56,186	56,186	225,184	
IHS	H1D9400062	53HD00027	Santa Fe SU	274,658	226,478	274,658	160,165	258,873	419,038	274,658		274,658	13,279	1,482,769	
Tribe	H1D9400377	53HD00016	San Juan (SFSU)		48,180		59,402	131,447	190,849	59,402	123,796	183,198	183,198	605,425	
IHS	H1D9400166	53HD00028	Albuq.Area/ADSA	116,154	116,154	82,898	82,898		82,898	82,898		82,898	82,898	563,900	
Tribe	H1D9400365		Canancita Band of NV				51,081	128,962	180,043	51,081	130,917	181,998	181,998	544,039	
Tribe	H1D9400401		Santa Clara									148,336	148,336	296,672	
Tribe	H1D9400388		Cochiti Tribe					90,956	90,956	40,722	86,315	127,037	127,037	345,030	
Tribe	H1D9400414-01		Tesuque										93,836	93,836	
Tribe	H1D9400415		San Ildefonso										103,531	103,531	
TOTAL				2,274,460	2,274,460	2,241,204	6,979,237			6,781,686			6,724,242	27,275,289	

2 awarded in Colorado

1 awarded in Texas

30 awarded in New Mexico

APPENDIX

Grant Programs
by Area—
Albuquerque

SDPI GRANT SITES

Bemidji Area

- <\$10,000
- \$10,000 - 14,999
- \$15,000 - 24,999
- ◆ \$25,000 - 49,999
- ▲ \$50,000 - 99,999
- ☆ > \$100,000
- ★ State Capitol



SUMMARY OF YR 1-6

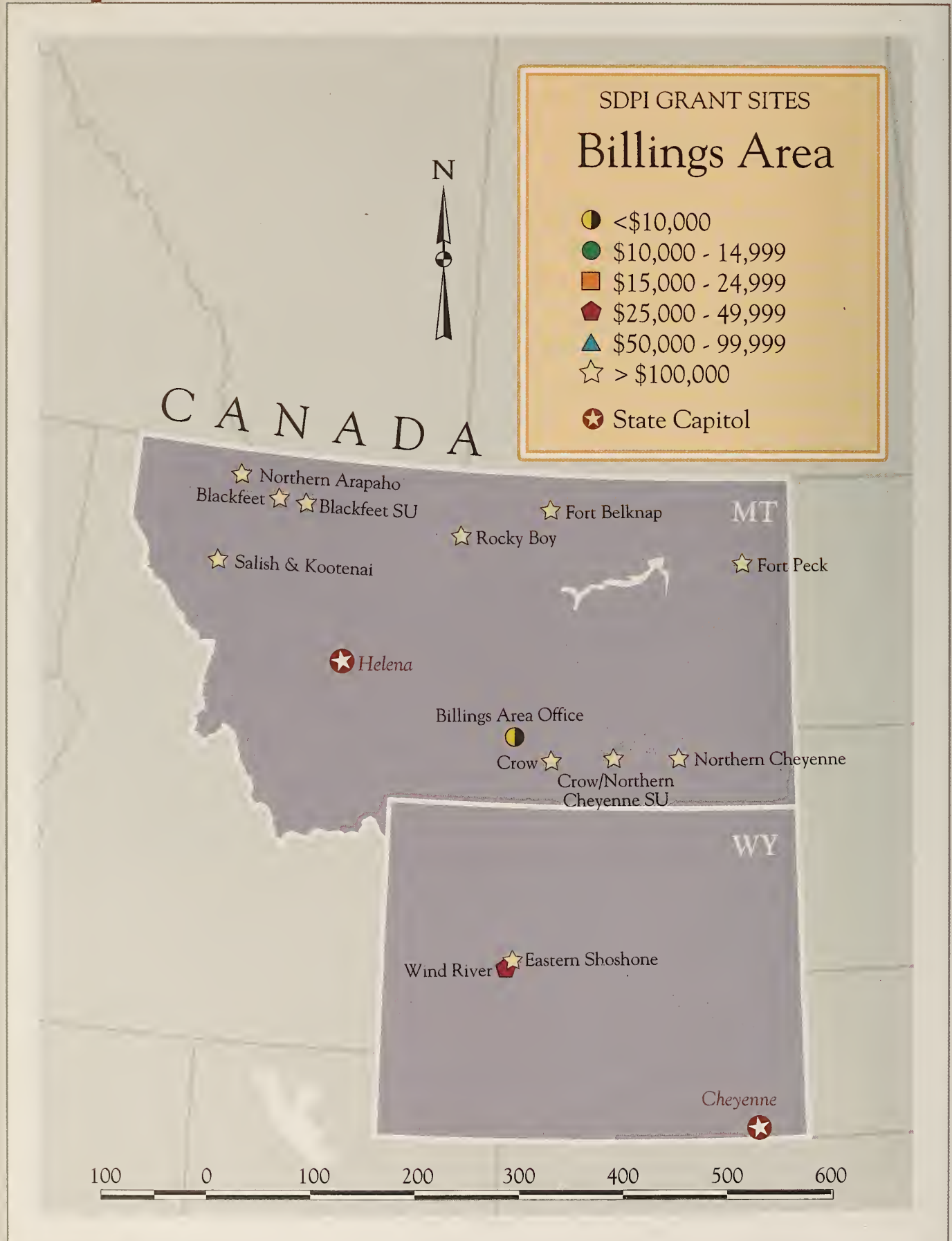
GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - BEMIDJI AREA

Tribe	NEW IHS GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED	
				1997-1998	1998-1999	1999-2000	2000-2001	2000-2001	TOTAL	2001-2002	TOTAL	2002-2003	GRAND	
				Yr 1 BBA Amt	Yr 2 BBA Amt	Yr 3 BBA Amt	Yr 4 BBA Amt	Yr 4 Supple- ment	BBA/ Suppl	Yr 5 BBA Amt	Yr 5 CAA Amt	BBA/ CAA	Yr 6 CAA Amt	GRAND TOTAL
Tribe	HID9400248	46HD00001	Leech Lake	185,365	187,050	187,050	181,740	468,350	650,090	212,341	457,419	669,760	684,530	2,563,845
Tribe	HID9400103	46HD00002	Red Lake	150,040	151,400	151,400	147,100	382,890	529,990	169,506	365,144	534,650	528,730	2,046,210
Tribe	HID9400104	46HD00003	White Earth	158,890	160,320	160,320	155,780	418,330	574,110	188,249	405,521	593,770	607,250	2,254,660
Tribe	HID9400267	46HD00004	Oneida T-III	159,640	161,090	161,090	156,510	426,210	582,720	189,305	407,795	597,100	597,990	2,259,630
Tribe	HID9400105	46HD00005	Menominee	140,360	141,630	141,630	137,620	359,740	497,360	161,244	347,346	508,590	513,630	1,943,200
Tribe	HID9400034	46HD00006	Ho-Chunk	61,000	61,560	61,560	59,810	170,420	230,230	80,132	172,618	252,750	262,570	929,670
Tribe	HID9400137	46HD00007	Boy Mills	38,150	38,410	38,410	37,400	78,260	115,660	30,445	65,585	96,030	98,740	425,400
Tribe	HID9400254	46HD00008	Grand Portage	31,000	31,140	31,140	30,390	43,620	74,010	16,767	36,123	52,890	52,900	273,080
Tribe	HID9400255	46HD00009	Bad River	42,580	42,930	42,930	41,750	96,840	138,590	41,019	88,361	129,380	128,210	524,620
Tribe	HID9400336	46HD00010	St. Croix	41,540	41,860	41,860	40,730	95,880	136,610	39,132	84,298	123,430	124,990	510,290
Tribe		46HD00011	GLITC(Red Cliff*)	40,040			new ID number			New ID number				40,040
Tribe	HID9400346	46HD00012	Lac Courte Oreilles	70,740	71,380	71,380	69,350	167,970	237,320	75,497	162,633	238,130	236,130	925,080
Tribe	HID9400140	46HD00013	Lac du Flambeau	54,930	55,420	55,420	53,850	145,090	198,940	61,313	132,077	193,390	195,410	753,510
Tribe	HID9400036	46HD00014	Upper Sioux	29,450	29,570	29,570	28,879	37,940	66,819	13,969	30,091	44,060	44,390	243,859
Tribe	HID9400385	46HD00015	Lower Sioux					44,330	44,330	17,551	37,809	55,360	55,970	155,660
Tribe	HID9400256	46HD00016	Prairie Island	29,230	29,350	29,350	28,660	45,530	74,190	16,369	35,261	51,630	47,260	261,010
Tribe	HID9400382	46HD00017	Shakopee/Prior Lake				30,180	49,200	79,380	16,816	36,224	53,040	54,380	186,800
Tribe	HID9400126	46HD00018	Boise Farte	37,190	37,440	37,440	36,460	97,470	133,930	31,276	67,374	98,650	94,680	439,330
Tribe	HID9400107	46HD00019	Keweenaw Bay/L'Anse	46,070	46,460	46,460	46,460	98,970	145,430	43,435	93,565	137,000	139,290	560,710
Tribe	HID9400250	46HD00020	Little River Ottawa	30,840	30,970	30,970	Did not Apply, funding to Bemidji Data			19,200	41,360	60,560	59,870	213,210
Tribe	HID9400347	46HD00021	Little Traverse Odawo	35,140	35,350	35,350	34,450	61,310	95,760	24,558	52,902	77,460	81,430	360,490
Tribe	HID9400268	46HD00022	Nottowaseppi Huron	31,800	31,950	31,950	31,170	47,610	78,780	18,033	38,847	56,880	56,260	287,620
Tribe	HID9400257	46HD00023	Stackbridge-Munsee	47,150	47,570	47,570	47,570	96,130	143,700	41,066	88,464	129,530	138,100	553,620
Tribe	HID9400258	46HD00024	Saginaw/Mt. Plst.	47,580	48,000	48,000	46,650	106,020	152,670	47,994	103,386	151,380	157,830	605,460
Tribe	HID9400106	46HD00025	Sakaogon/Male Lk.	30,940	31,070	31,070	30,330	42,950	73,280	15,120	32,570	47,690	45,530	259,580
Tribe	HID9400337	46HD00026	Forest County Pot.	34,300	34,500	34,500	33,630	71,520	105,150	31,244	67,306	98,550	103,780	410,780
Tribe	HID9400037	46HD00027	Hannahville/MI Pot.	35,700	35,920	35,920	35,000	67,200	102,200	27,389	59,001	86,390	84,350	380,480
Tribe	HID9400259	46HD00028	Lac Vieux Desert	30,040	30,160	30,160	29,450	44,820	74,270	16,033	34,537	50,570	51,420	266,620
Tribe	HID9400296	46HD00029	Pokagan Potawatami	39,450	39,730	39,730	38,680	78,970	117,650	32,327	69,443	101,770	100,170	438,500
Tribe	HID9400109	46HD00030	Fond Du Lac T-III	137,690	138,940	138,940	135,000	364,680	499,680	155,899	335,831	491,730	444,370	1,851,350
Tribe	HID9400038	46HD00031	Sault Ste Marie T-III	258,540	260,880	260,880	253,480	548,550	802,030	246,208	530,372	776,580	768,410	3,127,320
Tribe	HID9400108	46HD00032	Grand Traverse T-III	42,290	42,620	42,620	41,460	80,700	122,160	41,929	90,321	132,250	136,760	518,700
Tribe	HID9400181	46HD00033	Mille Lacs T-III	47,090	47,510	47,510	46,170	155,150	201,320	70,225	151,275	221,500	216,810	781,740
IHS	HID9400085	46HD00034	Bemidji Area	133,742	115,987	115,987	114,595	43,660	158,255	26,283	56,617	82,900	82,898	689,769
Tribe	HID4600260		Red Cliff/Lake Super		40,340	40,340	39,260	82,710	121,970	34,811	74,989	109,800	110,360	422,810
Tribe	HID9400403		MEBNSW (Gun Lake)							12,663	27,277	39,940	39,652	79,592
TOTAL				2,298,507	2,298,507	2,298,507	7,358,584			7,145,090			7,145,050	28,544,245

12 awarded in Minnesota
13 awarded in Michigan
11 awarded in Wisconsin

APPENDIX

Grant Programs
by Area - Bemidji



SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - BILLINGS AREA

TRIBE	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED		TOTAL 88A/ Suppl	AWARDED		TOTAL 88A/ CAA	AWARDED		GRAND TOTAL
				1997-1998	1998-1999	1999-2000	2000-2001	2000-2001		2001-2002	2001-2002		2002-2003	2002-2003	
				Yr 88A Amt	Yr 2 88A Amt	Yr 3 88A Amt	Yr 4 88A Amt	Yr 4 Supple- ment		Yr 5 88A Amt	Yr 5 CAA Amt		Yr 6 88A/ CAA Amt	Yr 6 CAA Amt	
Tribe	H1D9400253	47HD00001	Blackfeet Tribal	271,300	271,300	271,300	209,300	609,355	818,655	271,300	526,092	797,392	576,696	3,006,643	
IHS	H1D9400386		Blackfeet Service Unit									143,608	220,696	364,304	
Tribe	H1D9400138	47HD00002	Crow Tribal	264,500	264,500	264,500	264,500	353,988	618,488	264,500	557,986	822,486	489,286	2,723,760	
IHS	H1D9400391		Crow/N. Cheyenne SU									261,400	333,200	594,600	
Tribe	H1D9400297	47HD00003	Confederated Salish	226,100	226,100	226,100	226,100	472,590	698,690	226,100	462,373	688,473	688,473	2,753,936	
Tribe	H1D9400087	47HD00004	Fort Belknap	119,400	119,400	119,400	125,624	253,248	378,872	119,400	249,534	368,934	368,934	1,474,940	
Tribe	H1D9400279	47HD00005	Fort Peck	210,700	210,700	210,700	210,700	427,049	637,749	210,700	411,429	622,129	622,129	2,514,107	
Tribe		47HD00006	Shoshone Bus	239,100				new ID number						239,100	
Tribe	H1D9400277	47HD00007	Northern Cheyenne	162,100	162,100	162,100	162,100	335,649	497,749	162,100	326,876	488,976	297,976	1,771,001	
IHS	H1D9400392		N. Cheyenne SU									182,227	191,000	373,227	
Tribe	H1D9400129	47HD00008	Rocky Boy	100,100	100,100	100,100	100,100	227,159	327,259	100,100	230,828	330,928	330,928	1,289,415	
IHS	H1D9400100	47HD00009	Billings Area ADSA	116,197	116,197	82,948			82,948					398,290	
Tribe	H1D9400349	47HD00010	Northern Arapaho Tribe		154,099	154,099	102,099	262,081	364,180	154,099	293,230	447,329	447,329	1,567,036	
Tribe	H1D9400373		Eastern Shoshone		85,000	85,000	85,000	164,554	249,554	85,001	154,753	239,754	239,754	899,062	
IHS	H1D9400384		Wind River SU												
TOTAL				1,709,497	1,709,496	1,676,247			4,674,144			5,393,636	4,806,401	19,969,421	

11 awarded in Montana

3 awarded to Wyoming

APPENDIX

Grant Programs
by Area—Billings



SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - CALIFORNIA AREA

Tribe	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED	
				1997-1998	1998-1999	1999-2000	2000-2001		TOTAL	2001-2002		TOTAL	2002-2003	
				Yr 1 BBA Amt	Yr 2 BBA Amt	Yr 3 BBA Amt	Yr 4 BBA Amt	Yr 4 Supple- ment		Yr 5 BBA Amt	Yr 5 CAA Amt		Yr 6 CAA Amt	GRAND TOTAL
Tribe	H109400081	41HD00001	Cabazon Band	1,500	1,586	1,500	1,500	3,500	5,000	1,500	4,500	6,000	6,000	21,586
Tribe	H109400353	41HD00002	CRIBB, Inc.(S)	263,813	387,187	272,788	272,504	662,134	934,638	272,524	727,808	1,000,332	1,000,332	3,859,090
			Shingle Springs	48,009						14,577	33,432	48,009		
			Sonoma	357,567						87,541	270,026	357,567		
			Tuolumne	122,677						37,400	85,277	122,677		
			United Indian	454,487						131,034	323,453	454,487		
			Warner Mt.	17,592						1,972	15,620	17,592		
Tribe	H109400120	41HD00003	Chapo-De Indian	56,817	83,403	82,708	82,622	158,804	241,426	82,622	174,655	257,277	257,277	978,908
Tribe	H109400016	41HD00004	Colusa Indian Health	1,524	2,237	2,218	2,716	13,850	16,566	2,216	14,684	16,900	16,900	56,345
Tribe	H109400348	41HD00005	Consolidated Tribal	39,585	58,107	57,623	57,563	115,144	172,707	57,563	126,638	184,201	184,201	696,424
Tribe	H109400121	41HD00006	Feather River Tribal Hlth	46,243	67,881	67,315	67,245	150,257	217,502	67,245	165,655	232,900	232,500	864,341
Tribe	H109400320	41HD00007	Greenville Rancheria		24,334	24,131	24,106	58,127	82,233	24,106	63,930	88,036	88,036	306,770
Tribe	H109400122	41HD00008	Hoopa Health Assoc.	42,617	62,558	62,037	61,972	140,454	202,426	61,972	158,874	220,846	220,846	811,330
Tribe	H109400156	41HD00009	Indian Health Council, Inc.	64,588	94,810	94,020	93,922	208,049	301,971	93,922	228,815	322,737	322,737	1,200,863
Tribe	H109400231	41HD00010	Karuk Tribal Health	30,031	44,083	43,716	43,671	79,196	122,867	43,671	87,100	130,771	130,771	502,239
Tribe	H109400157	41HD00011	Lake County Tribal Health	17,461	25,631	25,418	25,391	72,374	97,765	25,391	79,599	104,990	104,990	376,255
Tribe	H109400017	41HD00012	Susanville (Lassen)	11,367	16,686	16,546	16,529	42,756	59,285	16,529	47,024	63,553	63,553	230,990
Tribe	H109400123	41HD00013	Modoc Indian Health	3,200	4,697	4,658	5,153	16,849	22,002	4,653	17,683	22,336	22,336	79,229
Tribe	H109400170	41HD00014	Northern Valley Indian	18,863	27,689	27,458	27,430	91,843	119,273	27,430	101,011	128,441	128,441	450,165
Tribe	H109400018	41HD00015	Pit River Health Services	12,738	18,698	18,542	18,523	43,611	62,134	18,523	47,966	66,489	66,489	245,090
Tribe	H109400019	41HD00016	Redding Rancheria	66,066	96,979	96,171	96,071	189,975	286,046	96,071	208,939	305,010	305,010	1,155,282
Tribe	H109400233	41HD00017	Riverside So Bernardino	139,128	204,227	202,523	202,311	498,876	701,187	202,311	542,671	744,982	744,982	2,737,029
Tribe	H109400158	41HD00018	Round Valley Indian Health	15,633	22,948	22,756	22,733	67,583	90,316	22,733	74,329	97,062	97,062	345,777
Tribe	H109400020	41HD00019	Santa Ynez Band	7,771	11,407	11,312	11,300	21,956	33,256	11,300	24,149	35,449	35,449	134,644
Tribe	H109400021	41HD00020	Southern Indian Health	47,386	69,558	68,979	68,907	117,966	186,873	68,907	129,740	198,647	198,647	770,090
Tribe	H109400333	41HD00021	Sycuan Band of Mission		2,249	2,329	2,826	13,242	16,068	2,326	14,074	16,400	16,400	53,446
Tribe	H109400372	41HD00022	Table Mt. Rancheria				Did not apply			Awarded to Colusa		6,000	6,000	12,000
Tribe	H109400234	41HD00023	Toiyabe Indian Health	43,516	63,878	63,345	63,279	141,042	204,321	63,279	155,121	218,400	218,400	811,860
Tribe	H109400196	41HD00024	Tule River Indian	42,053	61,730	61,216	61,152	114,409	175,561	61,152	125,829	186,981	186,981	714,522
IHS	H109400182	41HD00025	CAO-Data Improvement	135,829	118,028	82,905	82,903	100,002	182,905	82,903	100,000	182,903	182,903	885,473
Tribe	H109400367	41	Central Valley Indian Health			111,031	110,916	263,874	374,790	110,916	290,212	401,128	401,128	1,288,077
			CA Diabetes Control								150,000	150,000	150,000	300,000
TOTAL				1,107,729	1,570,591	1,523,245	1,523,245					5,388,771	5,388,371	19,887,825

Greenville Rancheria applied YR 02 as YR 01

Sycuan Band of Miss applied YR 02 as YR 01

31 awarded in California

APPENDIX

Grant Programs by
Area—California

SDPI GRANT SITES

Nashville Area

- <\$10,000
- \$10,000 - 14,999
- \$15,000 - 24,999
- ◆ \$25,000 - 49,999
- ▲ \$50,000 - 99,999
- ☆ > \$100,000

★ State Capitol



500

0

500

1000

SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - NASHVILLE AREA

				AWARDED			AWARDED			AWARDED			AWARDED	
				1997-1998	1998-1999	1999-2000	2000-2001			2001-2002			2002-2003	
Tribe	NEW	FORMER		Yr 1	Yr 2	Yr 3	Yr 4	Yr 4	TOTAL	Yr 5	Yr 5	TOTAL	Yr 6	
IHS	GRANT	GRANT		BBA	BBA	BBA	BBA	Supple-	BBA/	BBA	CAA	BBA/	CAA	GRAND
Urban	NUMBER	NUMBER	GRANTEE	Amt	Amt	Amt	Amt	ment	Suppl	Amt	Amt	CAA	Amt	TOTAL
T	51/31		Coushatta - Alabama	32,883	36,203	35,107	34,680	67,295	101,975	34,680	67,854	102,534	102,534	411,236
T	51/32		Catawba Tribe of SC	79,220	85,256	13,666	34,125	69,681	103,806	34,125	61,561	95,686	95,686	473,320
T	51/34		Chitimacha	26,034	28,751	25,315	27,797	48,249	76,046	27,797	38,646	66,443	66,443	289,032
T	51/35		Choctaw Tribe of Mississippi	186,404	204,928	225,570	222,540	500,654	723,194	222,540	587,484	810,024	810,024	2,960,144
T	51/36		Coushatta	22,841	24,151	25,989	27,207	46,777	73,984	27,207	44,530	71,737	73,879	292,581
T	51/37		Houlton Band of Maliseet	24,770	25,805	23,354	23,729	43,631	67,360	23,729	33,317	57,046	57,046	255,381
T	51/38		Jena of Choctaw	16,774	18,195	14,636	23,159	36,040	59,199	23,159	31,299	54,458	54,458	217,720
T	51/39		Micasukee	29,411	31,830	30,669	31,797	59,894	91,691	31,797	60,857	92,654	92,654	368,909
T	51/40		Micmac	26,015	28,390	24,312	25,495	44,871	70,366	25,495	27,435	52,930	52,930	254,943
T	51/41		Mohegan Tribe of Conn	40,053	43,231	35,152	35,495	67,434	102,929	35,530	71,278	106,808	106,808	434,981
T	51/42		Narragansett	28,770	31,143	29,856	28,771	54,976	83,747	28,771	60,185	88,956	88,956	351,428
T	51/43		Oneida Indian Nation	41,582	46,631	49,782	43,497	98,100	141,597	43,497	94,794	138,291	138,291	556,174
T	51/44		Passamaquoddy - Indian Townshp	31,902	36,374	33,016	34,505	67,134	101,639	34,505	40,824	75,329	75,329	353,589
T	51/45		Passamaquoddy - Pleasant Pt.	35,412	40,020	33,410	31,486	64,605	96,091	31,486	47,058	78,544	78,544	362,021
T	51/46		Penobscot	42,865	45,675	35,735	32,691	68,673	101,364	32,691	41,671	74,362	74,362	374,363
T	51/47		Pequot	29,770	33,464	31,927	33,603	67,220	100,823	33,603	45,723	79,326	54,458	329,768
T	51/48		Paorch Band Creek	53,903	62,502	49,742	43,955	105,181	149,136	43,955	98,554	142,509	142,509	600,301
T	51/49		Seminole Tribe of FL	63,054	68,385	75,176	83,771	191,064	274,835	83,771	197,710	281,481	281,481	1,044,412
T	51/50		Seneca Nation of Indians	128,970	138,513	132,898	114,429	252,588	367,017	114,429	387,299	501,728	501,728	1,770,854
T	51/51		St. Regis Mohawk	102,880	103,700	95,236	93,362	220,152	313,514	93,362	161,440	254,802	254,802	1,124,934
T	51/52		Tunica-Biloxi	16,060	17,194	15,782	23,065	38,965	62,030	23,065	32,815	55,880	55,880	222,826
T	51/53		Wampanoag-Gayhead	23,823	26,836	20,444	23,340	38,595	61,935	23,340	28,350	51,690	51,690	236,418
Tribe	H105100241	51HD00001	USET Total	1,083,396	1,177,177	1,056,774			3,324,278			3,333,218	3,310,492	13,285,335
Tribe	H105100280	51HD00002	East Band Cherokee, NC	244,313	266,682	264,783	253,143	601,551	854,694	253,143	811,254	1,064,397	1,064,379	3,759,248
IHS	H105100167	51HD00003	ADSA-Area, Nashville, TN	116,155		82,905	82,905		82,905					281,965
TOTAL				1,443,864	1,443,859	1,404,462			4,261,877			4,397,615	4,374,871	17,326,548

2 awarded in Alabama
3 awarded in Connecticut
2 awarded in Florida
4 awarded in Louisiana
5 awarded in Maine
1 awarded in Mississippi

3 awarded in New York
2 awarded in North Carolina
1 awarded in Rhode Island
1 awarded in South Carolina
2 awarded in Tennessee

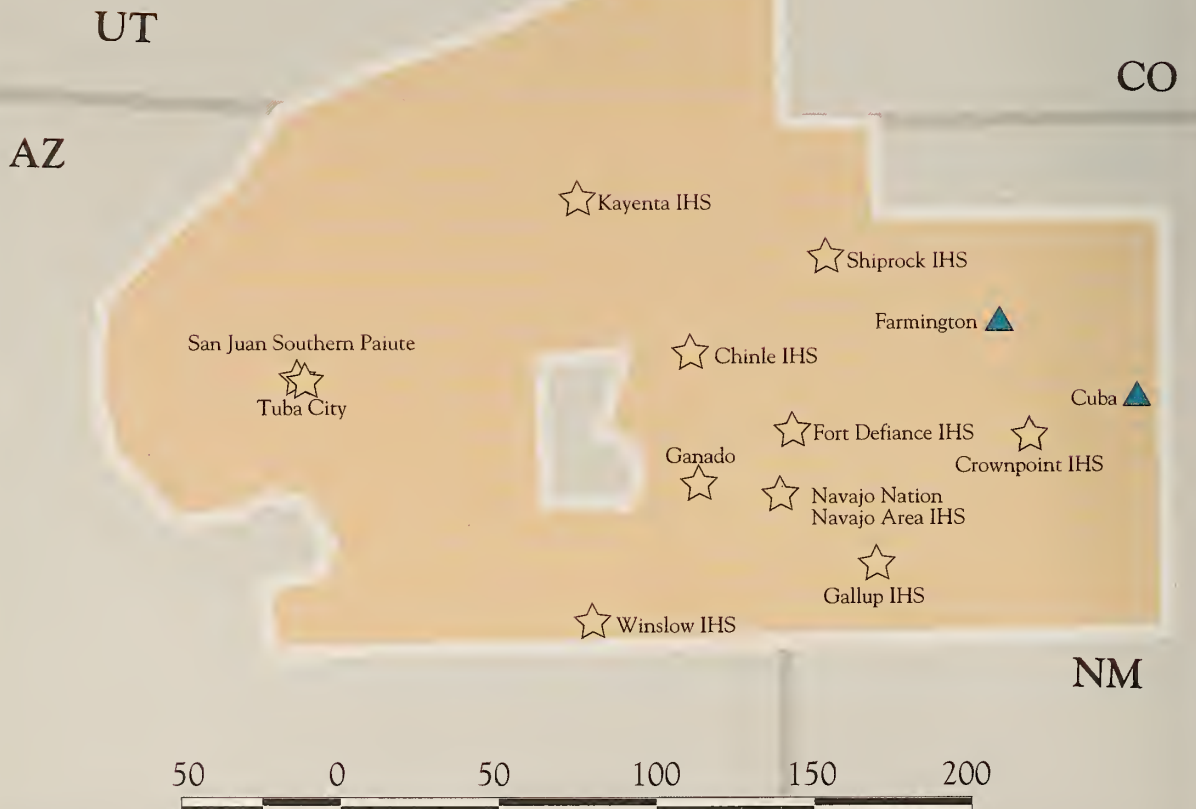
APPENDIX

Grant Programs by
Area - Nashville

SDPI GRANT SITES

Navajo
Area

- <\$10,000
- \$10,000 - 14,999
- \$15,000 - 24,999
- ◆ \$25,000 - 49,999
- ▲ \$50,000 - 99,999
- ☆ > \$100,000
- ★ State Capitol



SUMMARY OF YR 1-6

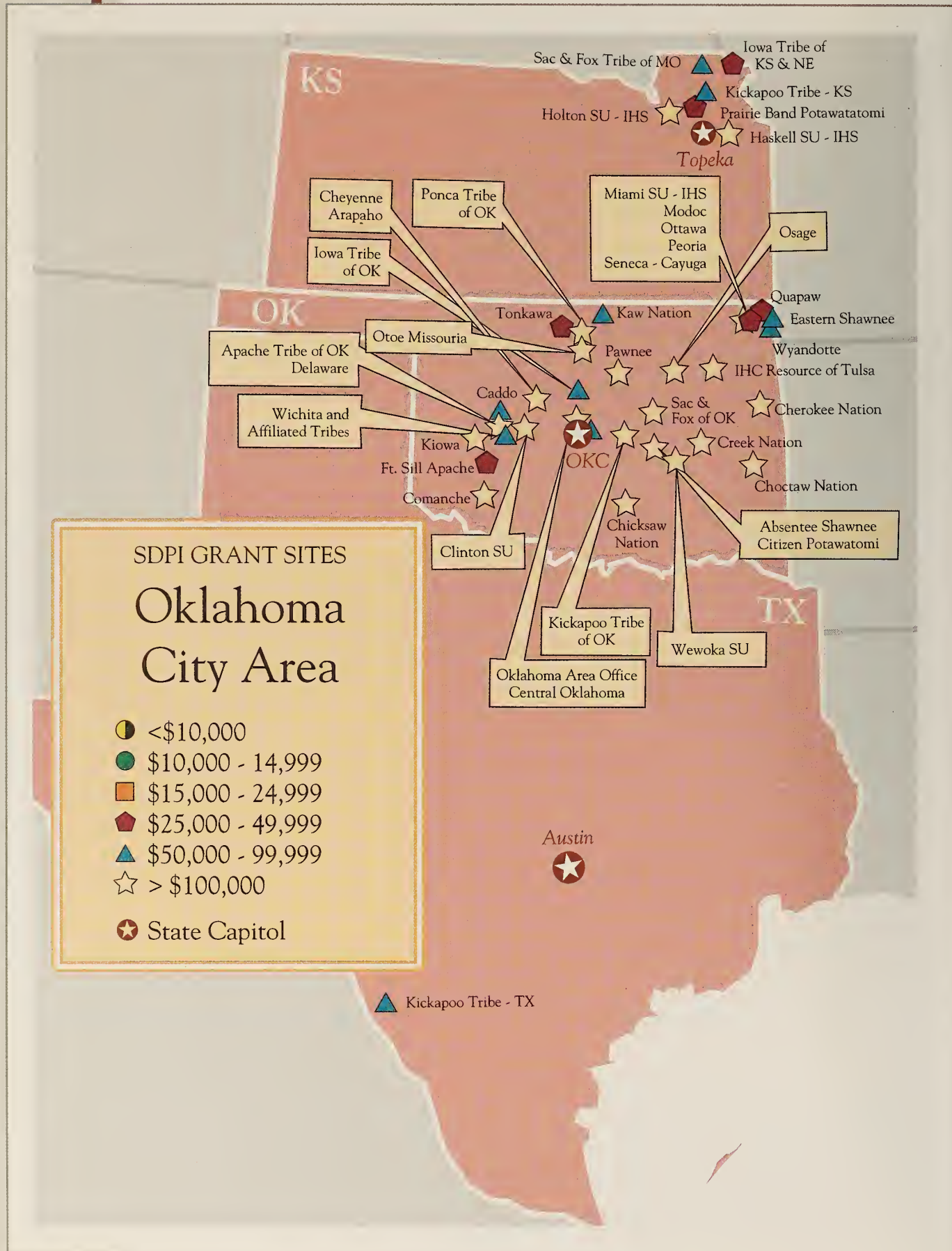
GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - NAVAJO AREA

Tribe IHS Urban	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED		GRAND TOTAL
				1997-1998	1998-1999	1999-2000	2000-2001			2001-2002			2002-2003		
				Yr 1 BBA Amt	Yr 2 BBA Amt	Yr 3 BBA Amt	Yr 4 BBA Amt	Yr 4 Supple- ment	TOTAL BBA/ Suppl	Yr 5 BBA Amt	Yr 5 CAA Amt	TOTAL BBA/ CAA	Yr 6 CAA Amt		
Tribe	HID5400242	54H000001	Navajo Nation	1,344,873	1,444,873	1,264,701	1,444,701	5,838,437	7,283,138	1,623,296	3,787,692	5,410,988	6,443,988	23,192,561	
Tribe	HID5400243	54H000002	San Juan	55,000	55,000	85,000	55,000	75,000	130,000	39,000	91,000	130,000	130,000	585,000	
IHS	HID5400132	54HD00003	Navajo Area IHS	2,920,874	2,820,874	2,937,797	2,787,797	2,744,053	5,531,850	2,211,982	5,161,293	7,373,275	5,601,275	27,185,945	
Tribe	HID9400411		Winslow Indian Health Ctr										284,500	284,500	
Tribe	HID9400409		Tuba City Health Care										454,500	454,500	
		TOTAL		4,320,747	4,320,747	4,287,498			12,944,988			12,914,263	12,914,263	51,702,506	

5 awarded in Arizona

APPENDIX

Grant Programs
by Area - Navajo



SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - OKLAHOMA AREA

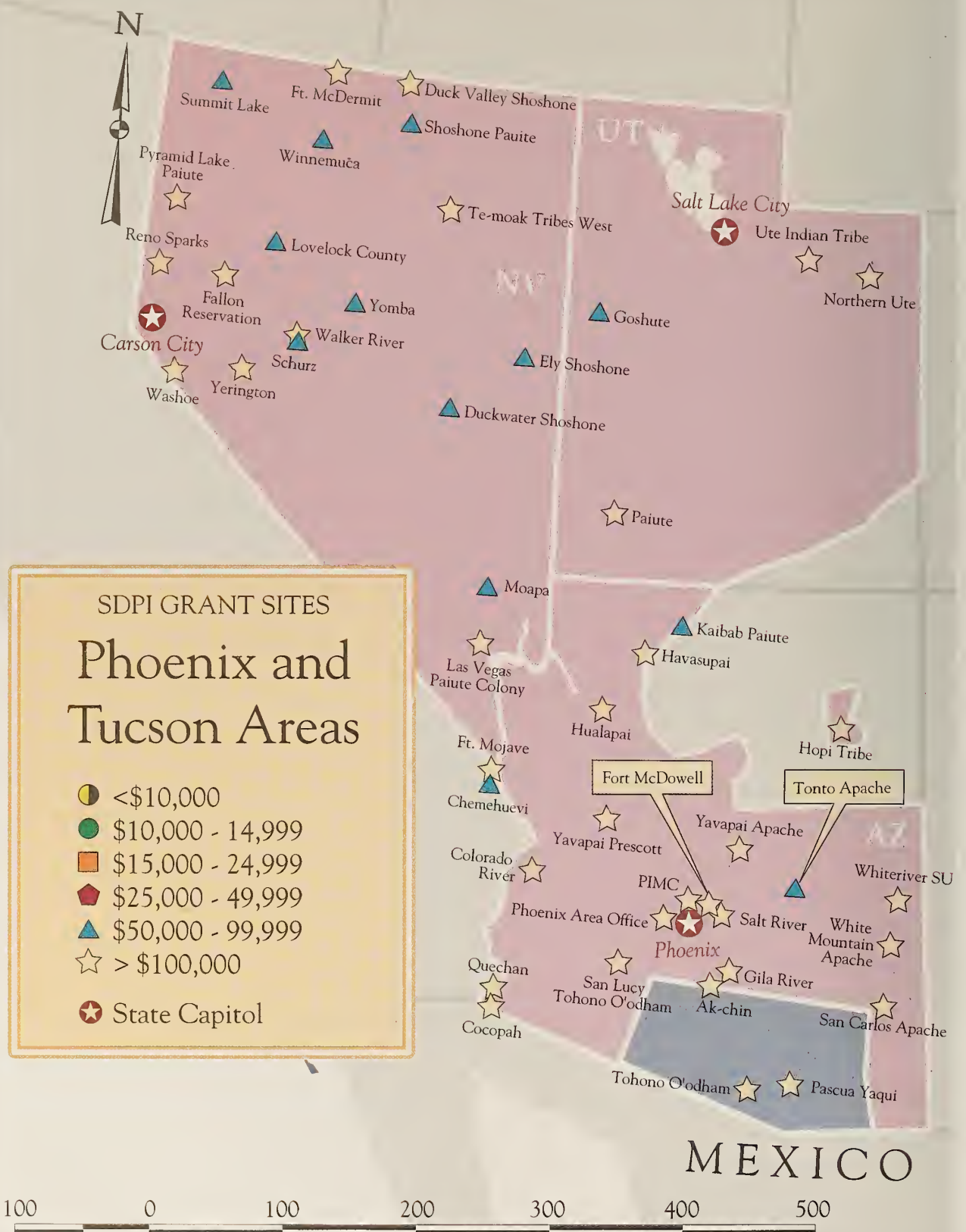
Tribe	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED		
				1997-1998	1998-1999	1999-2000	2000-2001		2001-2002		2002-2003				
				Yr 1 B8A Amt	Yr 2 B8A Amt	Yr 3 B8A Amt	Yr 4 B8A Amt	Supple- ment	TOTAL B8A/ Suppl	Yr 5 B8A Amt	Yr 5 CAA Amt	TOTAL B8A/ CAA	Yr 6 CAA Amt	GRAND TOTAL	
Tribes	H1D5000183	50HD00001	Absentee Shownee	109,268	109,268	108,260	108,260	153,635	261,895	108,260	153,635	261,895	261,895	1,112,481	
Tribes	H1D9400039	50HD00004	Cherokee Nation	1,381,059	1,381,059	1,380,051	1,380,051	4,020,083	5,400,134	1,380,051	4,020,083	5,400,134	5,400,131	20,342,568	
Tribes	H1D9400115	50HD00005	Citizen Potawatomi	146,524	146,524	145,516	145,516	409,034	554,550	145,516	409,034	554,550	554,550	2,102,214	
Tribes	H1D9400169	50HD00006	Comanche Tribe	124,823	124,823	123,815	123,815	258,335	382,150	123,815	258,335	382,150	382,150	1,519,911	
Tribes	H1D9400040	50HD00007	Muscogee Creek	382,262	382,262	381,254	381,254	1,066,144	1,447,398	381,254	1,066,144	1,447,398	1,447,398	5,487,972	
Tribes	H1D9400041	50HD00009	Iowa Tribe of OK	36,902	36,902	35,894	35,894	44,527	80,421	35,894	44,527	80,421	80,421	350,961	
Tribes	H1D9400042	50HD00010	Kaw Tribe	37,545	37,545	36,537	36,537	35,485	72,022	36,537	35,485	72,022	72,022	327,693	
Tribes	H1D9400116	50HD00011	Kickapoo Tribe/KS	35,681	35,681	34,673	34,673	20,484	55,157	34,673	20,484	55,157	55,157	271,506	
Tribes	H1D9400043	50HD00012	Kickapoo Tribe/OK	91,115	91,115	90,107	90,107	198,050	288,157	90,107	198,050	288,157	288,157	1,136,808	
Tribes	H1D9400044	50HD00013	Chickasaw Nation	203,090	203,090	202,082	202,082	543,465	745,547	202,082	543,465	745,547	745,547	2,844,903	
Tribes	H1D9400117	50HD00014	Choctaw Nation	547,434	547,434	546,426	546,426	1,535,577	2,082,003	546,426	1,635,577	2,182,003	2,182,003	8,087,303	
Tribes	H1D9400045	50HD00015	Wichito & Affiliated	44,706	44,706	43,698	43,698	47,296	90,994	43,698	47,296	90,994	90,994	406,092	
Tribes	H1D9400046	50HD00016	Otoe-Missouria	51,995	51,995	50,987	50,987	68,365	119,352	50,987	68,365	119,352	119,352	513,033	
Tribes	H1D9400159	50HD00019	Osage Tribe	93,622	93,622	92,614	92,614	190,941	283,555	92,614	190,941	283,555	312,832	1,159,800	
			DE Eastern OK								29,277	29,277		29,277	
Tribes	H1D9400048	50HD00020	Tonkawa Tribe	33,097	33,097	32,089	32,089	13,436	45,525	32,089	13,436	45,525	45,525	234,858	
Tribes	H1D9400114	50HD00021	Kickapoo Tribe/TX	35,539	35,539	34,532	34,532	18,440	52,972	34,532	18,440	52,972	52,972	264,526	
Tribes	H1D9400113	50HD00023	Wyandotte Tribe	34,344	34,344	33,336	33,336	11,378	44,714	33,336	11,378	44,714	96,699	288,151	
	H1D9400047	50HD00017	Eastern Shawnee	35,539	35,539	34,532	34,532	17,453	51,985	Sub-grant of Wyandotte Tribe after Year 4					157,595
Tribes	H1D9400238	50HD00024	Sac & Fox Nation	111,505	111,505	110,497	110,497	303,843	414,340	110,497	303,843	414,340	414,340	1,576,527	
Tribes	H1D9400050	50HD00025	Pawnee Tribe	58,937	58,937	57,929	57,929	85,109	143,038	57,929	85,109	143,038	143,038	604,917	
Tribes	H1D9400141	50HD00026	Wewoka SU	99,227	99,227	98,222			319,443	98,222	225,904	324,126	324,126	1,264,371	
Tribes	H1D9400142	50HD00027	Ponca Tribe of OK	78,786	78,786	77,779	77,779	143,081	220,860	77,779	143,081	220,860	220,860	897,931	
Tribes	H1D9400239	50HD00028	IHC Resource of Tulsa	105,711	105,711	104,703	104,703	246,288	350,991	104,703	246,288	350,991	350,991	1,369,098	
IHS	H1D9400143	50HD00029	Central Oklahoma	105,711	105,711	104,703	104,703	246,991	351,694	104,703	246,288	350,991	350,991	1,369,801	
IHS	H1D9400112	50HD00030	Haskell Health Center, KS	53,388	53,388	52,380	52,380	134,269	186,649	52,380	134,269	186,649	186,649	719,103	
Tribes	H1D9400287	50HD00031	Cheyenne/Arapaho Tribe	159,830	159,830	158,822	158,822	391,601	550,423	158,822	391,601	550,423	400,423	1,979,751	
IHS	H1D9400111	50HD00032	Holton SU, KS	99,320	99,320	98,312		2,512	136,451			133,939	165,460	732,802	
			Iowa KS/NE				30,695	20,355		30,695	20,355				
			PB Potawatomi				39,167	43,722		39,167	43,722				
Tribes	H1D9400413		Sac & Fox MO				25,938	5,583	31,521	25,938	5,583	31,521	31,521	94,563	
IHS	H1D9400394		Oklahoma City IHS									88,010	88,010	176,020	
IHS	H1D9400379	50HD00033	Northeastern	187,965	187,965	186,965	184,453	118,218	302,671			302,671	302,671	1,470,908	
			Miami				27,995	13,373		27,995	13,373				
			Modoc				25,347	3,873		25,347	3,873				
			Ottawa				29,898	16,191		29,898	16,191				
			Peoria				30,412	17,799		30,412	17,799				
			Quapaw				34,115	30,614		34,115	30,614				
			Seneca Cayuga				36,686	36,368		36,686	36,368				
IHS	H1D9400383		Lowton SU										633,637	633,637	
Tribes	H1D9400130	50HD00002	Apoche Tribe of OK	49,205	49,205	48,197	48,197	59,307	107,504	48,197	59,307	107,504	107,504	372,365	
Tribes	H1D9400301	50HD00003	Caddo Tribe	47,482	47,482	46,475	46,475	52,272	98,747	46,475	52,272	98,747	9,875	348,808	
Tribes	H1D9400131	50HD00008	Delaware Western OK	34,717	34,717	33,709	33,709	17,509	51,218	33,709	17,509	51,218	5,122	210,701	
Tribes	H1D9400187	50HD00018	Fl. Silt Apoche	31,053	31,053	30,045	30,045	6,770	36,815	30,045	6,770	36,815	36,815	202,596	
Tribes	H1D9400327	50HD00022	Kiowa Tribe	140,353	140,353	139,345	139,345	307,227	446,572	139,345	307,227	446,572	446,572	1,759,767	
IHS	H1D9400417		Clinton SU										150,000	150,000	
TOTAL				4,787,735	4,787,735	4,754,486			15,807,468			15,974,238	16,459,656	62,571,318	

39 awarded in Oklahoma

6 awarded in Kansas

1 awarded in Texas

Grant Programs
by Area—
Oklahoma



SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - PHOENIX AREA

Tribe IHS Urban	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED		GRAND TOTAL
				1997-1998	1998-1999	1999-2000	2000-2001		2001-2002		2002-2003				
				Yr 1 BBA Amt	Yr 2 BBA Amt	Yr 3 BBA Amt	Yr 4 BBA Amt	Yr 4 Supple- ment	TOTAL BBA/ Suppl	Yr 5 BBA Amt	Yr 5 CAA Amt	TOTAL BBA/ CAA	Yr 6 CAA Amt		
Tribe	H1D9400307	40HD00002	Chemehuevi, CA	21,312	21,312	21,312	21,312	69,859	91,171	21,202	69,498	90,700	90,699	336,506	
Tribe	H1D9400007	40HD00003	Cocopah	33,785	33,785	33,785	33,785	91,718	125,503	33,610	91,244	124,854	124,854	476,566	
Tribe	H1D9400247	40HD00004	Colorado River Indian	123,774	123,774	123,774	123,774	264,582	388,356	123,134	263,214	386,348	386,348	1,532,374	
Tribe	H1D9400008	40HD00005	Duckvalley Shoshone	59,217	59,217	59,217	59,217	138,126	197,343	58,911	137,412	196,323	196,322	767,639	
Tribe	H1D9400110	40HD00006	Duckwater Shoshone	19,422	19,422	19,422	19,422	67,636	87,058	19,322	67,286	86,608	86,608	318,540	
Tribe	H1D9400246	40HD00007	Ely Shoshone	23,051	23,051	23,051	23,051	77,249	100,300	22,932	76,849	99,781	99,781	369,015	
Tribe	H1D9400150	40HD00008	Fallon Paiute	53,728	53,728	53,728	53,728	133,216	186,944	53,450	132,527	185,977	185,977	720,082	
Tribe	H1D9400164	40HD00009	Fort McDowell	35,126	35,126	35,126	35,126	107,067	142,193	34,944	106,513	141,457	141,458	530,486	
Tribe	H1D9400358	40HD00010	Fort Mohave, CA	37,993	37,993	37,993	37,993	110,116	148,109	37,797	109,547	147,344	147,343	556,775	
Tribe	H1D9400009	40HD00011	Gila River Res./West En	585,365	585,365	585,365	585,365	1,133,334	1,718,699	549,791	1,040,856	1,590,647	1,590,647	6,656,088	
Tribe	H1D9400402	40HD00001	Ak-Chin (GRIC)									119,165	119,165	238,330	
Tribe	H1D9400096	40HD00012	Goshute Res., UT	18,263	18,263	18,263	18,263	71,306	89,569	18,169	70,937	89,106	89,106	322,570	
Tribe	H1D9400151	40HD00013	Havasupai Tribe	28,966	28,966	28,966	28,966	85,569	114,535	28,816	85,126	113,942	113,943	429,318	
Tribe	H1D9400309	40HD00014	Hopi Tribe	204,127	204,127	204,127	204,127	404,165	608,292	203,071	402,075	605,146	605,146	2,430,965	
Tribe	H1D9400010	40HD00015	Hualapai Tribe	68,152	68,152	68,152	68,152	156,833	224,985	67,800	156,022	223,822	223,821	877,084	
Tribe	H1D9400152	40HD00016	Kaibab Res./Paiute	16,860	16,860	16,860	16,860	66,241	83,101	16,773	65,898	82,671	82,671	299,023	
Tribe	H1D9400011	40HD00017	Las Vegas Paiutes	58,451	58,451	58,451	58,451	175,736	234,187	34,854	102,914	232,976	232,976	875,492	
Tribe	H1D9400020	40HD00020	Moapa Res. (LVPT)								23,295	71,913			
Tribe	H1D9400203	40HD00018	Lovelock Paiute	21,526	21,526	21,526	21,526	70,789	92,315	21,415	70,423	91,838	91,838	340,569	
Tribe	H1D9400355	40HD00021	Paiute Tribe of Utah	30,339	30,339	30,339	30,339	80,143	110,482	30,182	79,729	109,911	109,911	421,321	
IHS	H1D9400171	40HD00022	PIMC	492,524	492,524	492,524	492,524	508,186	1,000,710	489,977	505,558	995,535	959,109	4,432,926	
Tribe	H1D9400252	40HD00023	Pyramid Lake	57,723	57,723	57,723	57,723	146,859	204,582	57,424	146,099	203,523	203,524	784,798	
Tribe	H1D9400359	40HD00024	Quechan Tribe, CA	99,836	99,836	99,836	99,836	219,519	319,355	99,320	218,384	317,704	317,703	1,254,270	
Tribe	H1D9400012	40HD00025	Reno/Sparks	109,289	109,289	109,289	109,289	230,991	340,280	108,724	229,796	338,520	338,520	1,345,187	
Tribe	H1D9400311	40HD00026	Salt River	150,705	150,705	150,705	150,705	335,222	485,927	149,922	333,492	483,414	483,414	1,904,870	
Tribe	H1D9400013	40HD00027	San Carlos Apache	337,601	337,601	337,601	337,601	666,691	1,004,292	335,856	663,242	999,098	999,098	4,015,291	
Tribe	H1D9400095	40HD00028	San Lucy Tohono O'odh	16,863	16,863	16,863	16,863	28,010	44,873	16,776	27,865	44,641	117,493	257,596	
Tribe	H1D9400177	40HD00031	Te Maak Tribes West	71,628	71,628	71,628	71,628	157,970	229,598	71,258	157,153	228,411	228,411	901,304	
Tribe	H1D9400176	40HD00032	Tonto Apache	18,812	18,812	18,812	18,812	61,830	80,642	18,715	62,505	81,220	81,220	299,518	
IHS	H1D9400147	40HD00033	Uintah-Urday, UT	152,740	152,740	152,740	152,740	326,741	463,627	136,179	265,733	401,912	75,090	1,398,849	
Tribe	H1D9400376	40HD00029	Skull Valley Res.(U&O, UT)					15,854	15,854	15,772	59,318	75,090		90,944	
Tribe	H1D9400094	40HD00034	Walker River	44,915	44,915	44,915	44,915	111,873	156,788	44,683	111,294	155,977	155,977	603,487	
Tribe	H1D9400175	40HD00035	Washoe Tribes of CA&N	79,587	79,587	79,587	79,587	174,352	253,939	79,175	173,450	252,625	252,626	997,951	
Tribe	H1D9400014	40HD00036	White Mountain Apache	436,647	436,647	436,647	436,647	830,563	1,267,210	434,390	826,267	1,260,657	1,260,656	5,098,464	
IHS	H1D9400405		Whiteriver SU												
Tribe	H1D9400200	40HD00038	Yavapai-Apache	31,589	31,589	31,589	31,589	91,150	122,739	31,426	90,679	122,105	122,104	461,715	
Tribe	H1D9400092	40HD00039	Yavapai-Presc	25,917	25,917	25,917	25,917	77,300	103,217	25,783	76,900	102,683	102,683	386,334	
Tribe	H1D9400199	40HD00040	Yerington Res & Clny	31,254	31,254	31,254	31,254	91,925	123,179	31,092	91,450	122,542	122,542	462,025	
Tribe	H1D9400015	40HD00041	Yomba Shoshone	18,019	18,019	18,019	18,019	64,071	82,090	17,926	63,740	81,666	81,665	299,478	
IHS	H1D9400186	40HD00042	Phx IHS - Data	116,152	116,152	82,903			254,905	82,474	171,112	253,586	217,160	1,040,858	
IHS	H1D9400093	40HD00043	Schurz Service Unit	67,535	67,535	67,535		67,535	218,310	285,845	67,185	217,180	284,365	1,057,180	
Tribe	H1D9400019	40HD00044	McDermitt Res.					31,741	90,272	31,577	89,804				
Tribe	H1D9400030	40HD00045	Summit Lake					15,000	58,231	14,922	57,930				
Tribe	H1D9400037	40HD00046	Winnemucca Colony					20,794	69,807	20,686	69,446				
Tribe	H1D9400419		Ute Indian Tribe										401,912	401,912	
TOTAL				3,798,793	3,798,793	3,765,544			11,582,794			11,523,890	11,523,886	45,993,700	

20 awarded in Arizona
2 awarded in California

17 awarded in Nevada
6 awards in Utah

SUMMARY OF YR 1-6

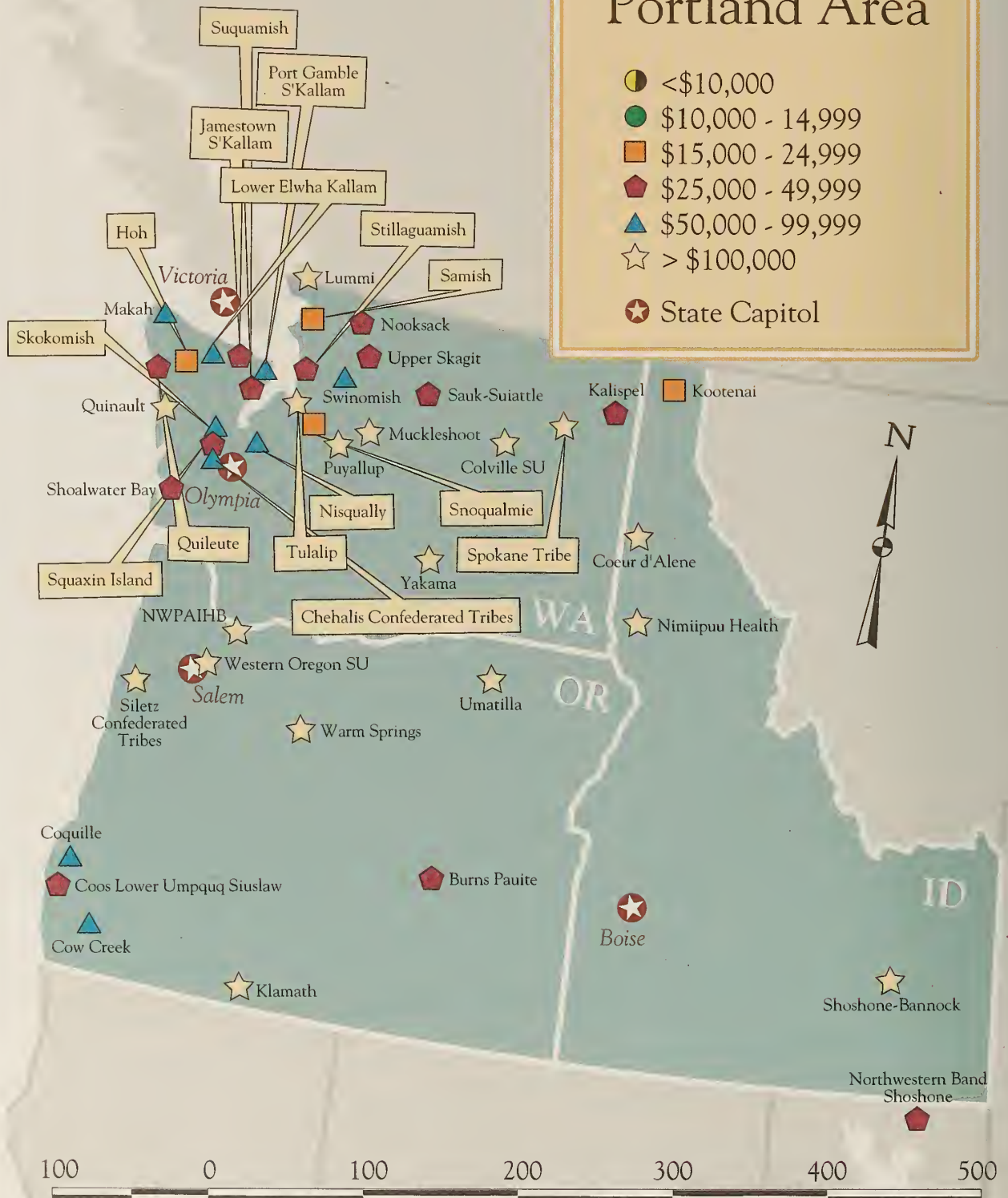
GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - TUCSON AREA

			AWARDED			AWARDED			AWARDED			AWARDED		
			1997-1998	1998-1999	1999-2000									
Tribes	NEW	FORMER	Yr 1	Yr 2	Yr 3	Yr 4	Yr 4	TOTAL	Yr 5	Yr 5	TOTAL	Yr 6		
Urban	GRANT	GRANT	BBA	BBA	BBA	BBA	Supple-	BBA	BBA	CAA	BBA/	CAA	GRAND	
	NUMBER	NUMBER	Amt	Amt	Amt	Amt	ment	Suppl	Amt	Amt	CAA	Amt	TOTAL	
Tribes	H1D9400022	42H000001	Tohono O'odham	536,566	536,566	583,880	583,880	1,225,475	1,809,355	583,880	1,266,055	1,849,935	1,852,268	7,168,570
Tribes	H1D9400023	42H000002	Pascua Yaqui	116,822	137,590	152,413	152,413	319,892	472,305	152,413	330,483	482,896	480,563	1,842,589
IHS	H1D9400029	42H000003	Tohono O'odham Nation	116,154										116,154
TOTAL			769,542	674,156	736,293			2,281,660				2,332,831	2,332,831	9,127,313

SDPI GRANT SITES Portland Area

- <\$10,000
- \$10,000 - 14,999
- \$15,000 - 24,999
- ◆ \$25,000 - 49,999
- ▲ \$50,000 - 99,999
- ☆ > \$100,000

★ State Capitol



Tribe	NEW GRANT NUMBER	FORMER GRANT NUMBER	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED	
				1997-1998	1998-1999	1999-2000	2000-2001		2001-2002		2002-2003			
				Yr 1 BBA Amt	Yr 2 BBA Amt	Yr 3 BBA Amt	Yr 4 BBA Amt	Yr 4 Supplement Amt	TOTAL BBA/ Suppl	Yr 5 BBA Amt	Yr 5 CAA AMT Amt	TOTAL BBA/CAA	Yr 6 CAA Amt	GRAND TOTAL
Tribes	HID9400184	64HD00001	Burns	13,295	13,295	13,295	13,295	13,295	26,590	13,295	13,451	26,746	26,746	119,967
Tribes	HID9400356	64HD00002	Chehalis	20,046	20,046	20,046	20,046	36,641	56,687	20,046	37,367	57,413	57,413	231,651
Tribes	HID9400173	64HD00003	Coeur d'Alene SG	48,986	48,986	48,986	48,986	116,893	165,879	48,986	119,208	168,194	168,194	649,225
IHS	HID9400198	64HD00004	Colville	95,140	95,140	95,140	95,140	275,461	370,601	95,140	280,916	376,056	376,056	1,408,133
Tribes	HID9400339	64HD00005	Coos	17,377	17,377	17,377	17,377	17,377	34,754	17,377	17,663	35,040	35,040	156,965
Tribes	HID9400072	64HD00006	Coquille	17,716	17,716	17,716	17,716	31,678	49,394	17,716	32,305	50,021	50,021	202,584
Tribes	HID9400180	64HD00007	Cow Creek	20,296	20,296	20,296	20,296	35,233	55,529	20,296	35,931	56,227	56,227	228,871
Tribes	HID9400073	64HD00008	Grand Ronde	61,026	61,026	61,026	61,026	98,872	159,898	61,026	100,830	161,856	161,856	666,688
Tribes	HID9400236	64HD00010	Jamestown	14,809	14,809	14,809	14,809	14,809	29,618	14,809	14,969	29,778	29,778	133,601
Tribes	HID9400153	64HD00011	Kalispel	12,942	12,942	12,942	12,942	12,942	25,884	12,942	13,099	26,041	26,041	116,792
Tribes	HID9400273	64HD00012	Klamath	36,069	36,069	36,069	36,069	77,225	113,294	36,069	78,754	114,823	114,823	451,147
Tribes	HID9400090	64HD00013	Kootenai	12,116	12,116	12,116	12,116	12,116	24,232	12,116	12,228	24,344	24,344	109,268
Tribes	HID9400285	64HD00014	L Elwha	22,589	22,589	22,589	22,589	29,461	52,050	22,589	30,044	52,633	52,633	225,083
Tribes	HID9400335	64HD00015	Lummi	59,998	59,998	59,998	59,998	162,862	222,860	59,998	166,087	226,085	226,085	855,024
Tribes	HID9400237	64HD00016	Makah	29,542	29,542	29,542	29,542	65,821	95,363	29,542	67,125	96,667	96,667	377,323
Tribes	HID9400149	64HD00017	Muckleshoot	42,384	42,384	42,384	42,384	103,800	146,184	42,384	105,856	148,240	148,240	569,816
Tribes	HID9400097	64HD00018	Nimipuu Health	50,715	50,715	50,715	50,715	126,256	176,971	50,715	128,756	179,471	179,471	688,058
Tribes	HID9400352	64HD00019	Nisqually	24,193	24,193	24,193	24,193	28,616	52,809	24,193	29,183	53,376	53,376	232,140
Tribes	HID9400074	64HD00020	Noaksock	21,812	21,812	21,812	21,812	26,891	48,703	21,812	27,424	49,236	49,236	212,611
Tribes	HID9400160	64HD00021	NW Shoshoni	13,231	13,231	13,231	13,231	13,231	26,462	13,231	13,265	26,496	26,496	119,147
Tribes	HID9400328	64HD00022	Pt. Gamble	20,960	20,960	20,960	20,960	36,817	57,777	20,960	37,546	58,506	58,506	237,669
Tribes	HID9400251	64HD00023	Puyallup	92,509	92,509	92,509	92,509	255,574	348,083	92,509	260,636	353,145	353,145	

1 awarded in Utah
29 awarded in Washington

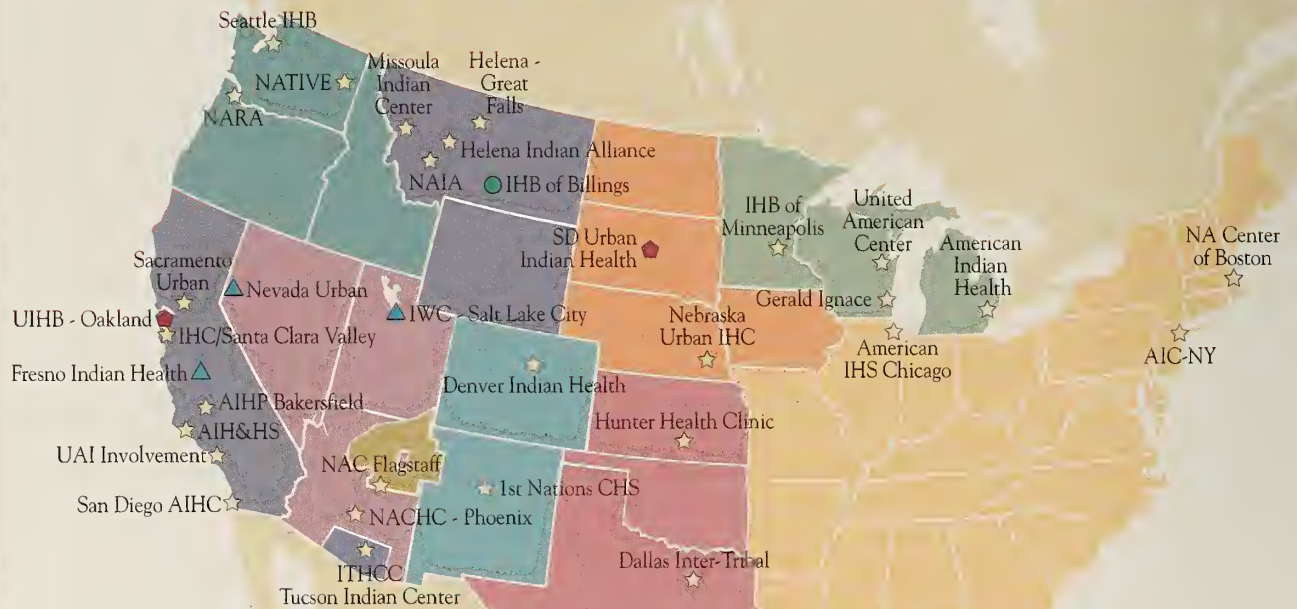
Grant Programs by Area—Portland

SDPI GRANT SITES

IHS Urban Programs

- <\$10,000
- \$10,000 - 14,999
- \$15,000 - 24,999
- ◆ \$25,000 - 49,999
- ▲ \$50,000 - 99,999
- ☆ > \$100,000

- Aberdeen
- Alaska
- Albuquerque
- Bemidji
- Billings
- California
- Nashville
- Navajo
- Oklahoma
- Phoenix
- Portland
- Tucson



SUMMARY OF YR 1-6

GRANTS FOR SPECIAL DIABETES PROGRAM FOR INDIANS - URBAN PROGRAMS

Tribe	NEW GRANT	FORMER GRANT	GRANTEE	AWARDED			AWARDED			AWARDED			AWARDED		GRAND TOTAL
				1997-1998	1998-1999	1999-2000	2000-2001		TOTAL	2001-2002		TOTAL	2002-2003		
				Yr 1 88A Amt	Yr 2 88A Amt	Yr 3 88A Amt	Yr 4 88A Amt	Yr 4 Supple- ment		Yr 5 88A Amt	Yr 5 CAA Amt		Yr 6 CAA Amt		
Urban	NUMBER	NUMBER													
Urban	H1D9400318	ISHD02180	SD Urban Indian Health	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	132,837		572,590
Urban	H1D9400083	ISHD02181	Nebraska Urban IHC	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,869
Urban	H1D9400319	ISHD02182	1st Nations CHS	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,869
Urban	H1D9400089	ISHD02183	Denver Indian Health	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,869
Urban	H1D9400288	ISHD02184	American IHS Chicago	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	132,837		572,590
Urban	H1D9400281	ISHD02185	Utd Amer Ctr-Green Bay	46,875	45,455	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103		438,921
Urban	H1D9400360	ISHD02186	Milwaukee-Gerald Ignace	46,875	45,454	44,973	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,888
Urban	H1D9400230	ISHD02187	IHB of Minneapolis - MN	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,869
Urban	H1D9400289	ISHD02188	AIH, Detroit, MI	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	132,837		572,590
Urban	H1D9400282	ISHD02189	IHB of Billings	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,869
Urban	H1D9400295	ISHD02190	NAIA, Butte, MT	46,875	45,455	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103		438,921
Urban	H1D9400397	ISHD02191	Helena-Great Falls	46,875	45,455					43,631	91,638	135,269	162,570		390,169
Urban	H1D9400317	ISHD02192	Helena Indian Alliance	46,875	45,455	44,953	43,631	123,570	167,201	43,631	91,638	135,269	162,570		602,323
Urban	H1D9400284	ISHD02193	Missoula Indian Center	46,875	45,455	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103		438,921
Urban	H1D9400262	ISHD02194	San Diego AIHC - CA	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,869
Urban	H1D9400082	ISHD02195	Sacramento Urban - CA	46,875	45,455	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,869
Urban	H1D9400304	ISHD02196	UIHB - Oakland, CA	46,875	45,455	44,953	43,631	123,570	167,201	87,262	183,276	270,538	265,673		840,695
Urban	H1D9400303	ISHD02197	Fresno Indian Health - CA	46,875	45,455	44,953	43,631		43,631	funds to UIHB-Oakland					180,914
Urban	H1D9400398	ISHD02198	AIHP - Bakersfield	46,875	45,454				93,812	43,631	61,092	104,723	103,103		393,967
Urban	H1D9400312	ISHD02199	IHC/Santa Clara Valley	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400308	ISHD02200	UAI Involvement - LA	46,875	45,455	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103		438,921
Urban	H1D9400310	ISHD02201	AIH&HS-Santa Barb	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400322	ISHD02202	AIC-NY	46,875	45,454	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103		438,920
Urban	H1D9400330	ISHD02203	NA Center of Boston	46,875	45,454	44,953	43,631	50,181	93,812	43,631	61,092	104,723	103,103		438,920
Urban	H1D9400331	ISHD02204	NAC Flagstaff, AZ	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400264	ISHD02205	Dallas Inter-Tribal	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400244	ISHD02206	Hunter Health Clinic	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400351	ISHD02207	Nevada Urban - Reno	46,875	45,454	44,953	43,631	50,181	93,812	43,631	91,638	135,269	132,837		499,200
Urban	H1D9400229	ISHD02208	NACHC-Phx	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400323	ISHD02209	NARA - Portland, OR	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400305	ISHD02210	Seattle IH Board	46,875	45,454	44,953	43,631	123,570	167,201	43,631	122,184	165,815	162,570		632,868
Urban	H1D9400314	ISHD02211	ITHCC - Tucson	46,875	45,454	44,953	43,631	50,181	93,812	Changed name & ID#		104,723	103,103		438,920
Urban	H1D9400245	ISHD02392-01	IWC- Salt Lake City		45,454	44,953	43,631	50,181	93,812	43,631	61,092	104,723	132,837		421,779
Urban	H1D9400406		Tucson Indian Center						93,812	43,631	61,092	104,723	103,103		301,638
Urban	H1D9400370		N.A.T.I.V.E.-Spokane			44,953	43,646	123,570	167,216	43,646	122,184	165,830	162,570		540,569
Urban	H1D9400396		Seattle IHB					125,000	125,000		125,000	125,000	125,000		375,000
Urban	H1D9400395		IHB of Billings					31,000	31,000		14,940	14,940	14,957		60,897
TOTAL				1,500,000	1,500,000	1,438,516			4,910,000			5,088,192	5,086,572		19,523,280

4 awarded in Arizona
8 awarded in California
1 awarded in Colorado
1 awarded in Illinois
1 awarded in Kansas

1 awarded in Massachusetts
1 awarded in Michigan
1 awarded in Minnesota
1 awarded in Montana
1 awarded in Nebraska

1 awarded in Nevada
1 awarded in New Mexico
1 awarded in New York
1 awarded in Oregon
1 awarded in South Dakota

1 awarded in Utah
3 awarded in Washington
2 awarded in Wisconsin

APPENDIX

Grant Programs
by Area - HS Areas

REFERENCES

- 4S Group (see Scandinavian Simvastatin Survival Study Group)
- 45 CFR 74 (Uniform Administrative Requirements for Awards and Subawards to Institutions of Higher Education, Hospitals, Other Nonprofit Organizations, and Commercial Organizations; and Certain Grants and Agreements with States, Local Governments, and Indian Tribal Governments)
- 45 CFR 92 (Uniform Administrative Requirements for Grants and Cooperative Agreements to State and Local Governments)
- Allison DB, Fontaine KR, Manson JE, Stevens J, VanItallie TB. Annual deaths attributable to obesity in the United States. *Journal of the American Medical Association*. 282:1530–38, 1999.
Appendix I
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Short-term Outcomes: Organized Diabetes Education Programs
Short-term Outcomes: Community Physical Fitness Activities
- American Diabetes Association. Screening for type 2 diabetes. *Diabetes Care*. 27(S1):S11–S14, 2004.
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In memory of our
dear friends and colleagues



gloria Lucero
1959 - 2002
IHS National Diabetes Program



Dr. Janette Carter
1953 - 2001
UNM Native American
Diabetes Program

